Digital HiNote VP 500 Series

Service Guide

Part Number: ER-PB1WF-SM. A01

Digital Equipment Corporation
Maynard, Massachusetts

September 1996

The FCC wants you to know...

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

All external cables connecting to this basic unit must be shielded. For cables connecting to PCMCIA cards, see the option manual or installation instructions.

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Preface

This guide describes how to test, troubleshoot, and remove and replace the Digital HiNote VP 500 series notebook computer Field Replaceable Units (FRUs).

Audience

This service guide is written specifically for service engineers.

Organization

This guide contains the following:

- Chapter 1: *Overview* – This chapter introduces the Digital HiNote VP 500 series notebook computers. It provides a system overview and describes the controls, indicators, and hot keys.
- Chapter 2: *System BIOS* – This chapter provides information related to the system BIOS and its Setup program.
- Chapter 3: *Troubleshooting* – This chapter provides a systematic method of isolating problems with the Digital HiNote VP 500 series of notebook computers.
- Chapter 4: *FRU Replacement* – This chapter provides detailed procedures for replacing the Digital HiNote VP 500 series notebook computer Field Replaceable Units (FRUs).
- Chapter 5: *FRU List and Illustrated Parts Breakdown* – This chapter provides a list of the Field Replaceable Units (FRUs) and a parts breakdown and parts list for the Digital HiNote VP 500 series notebook computer.
- Appendix A: *Specifications* – This appendix lists the notebook computer's specifications.
- Appendix B: *Device Mapping* – This appendix contains tables listing the default settings for of the notebook computer's memory map, I/O address map, interrupt map, and DMA map.
- Appendix C: *System Connector Pin Assignments* – This appendix shows the location of the connectors on the system motherboard and provides a listing of the pinouts for these connectors.
- Appendix D: *Schematics* – This appendix contains the schematic drawings for the system.

1
Overview

This chapter introduces the Digital HiNote VP 500 series notebook computers. It provides a system overview and describes the controls, indicators, and hot keys.

System Overview

The HiNote VP 500 series are high-performance portable computers designed for the mobile professional.

Figure 1-1 shows a functional block diagram of the notebook computer. The following sections provide an overview of the different functions.

CPU and Chip Set

The HiNote VP 500 series notebook computers use the Intel P54LM 100 and P54CSLM 120/133 processors mounted on a daughter card.

The following chip set is used to implement the core functions of the system.

- Intel Mobile Triton chip set provides system controller & PCI IDE controller functions
- SMC665IR/669 provides support for floppy disk controller (FDC), two serial ports (one serial port and one SIR) and one parallel port
- Intel 80C51SL provides the keyboard controller and scanner and the battery management unit
- Cirrus CL-PD6730 is used as the PCI PCMCIA controller
- ESS ES1688 for the audio subsystem

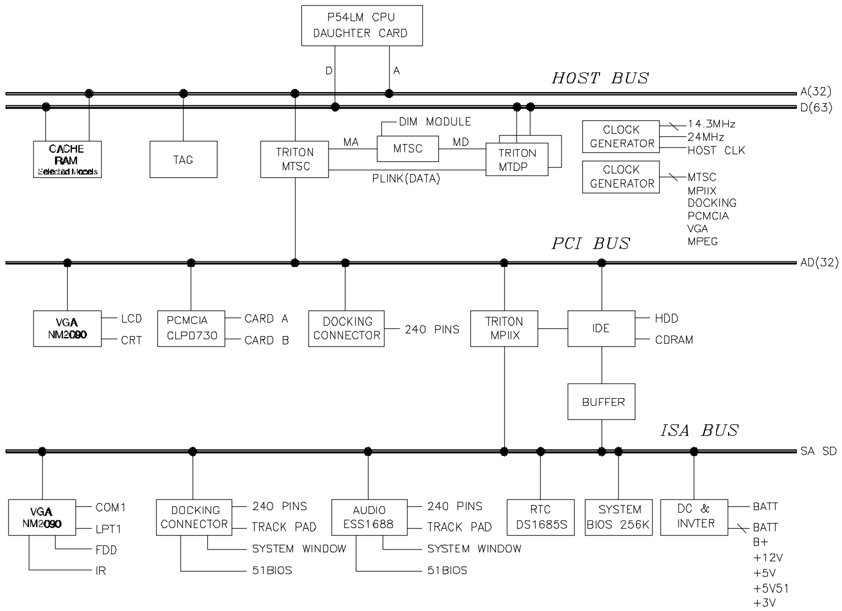


Figure 1-1 Functional Block Diagram

Memory

The system comes with 8MB of on-board DRAM for system memory and 256KB of L2 cache memory (on selected models).

System memory can be upgraded to a total of 16MB, 24MB and 40MB. The upgrade is performed by installing two 4MB, 8MB, or 16MB DIMM modules. Two identical memory modules must be installed when adding additional memory.

BIOS

The system has a 256KB Flash ROM for system BIOS (Phoenix BIOS 4.04). The BIOS provides support for the following:

- Suspend to RAM/Disk
- Full APM 1.1 supported
- Password protection(System and HDD)
- Auto-configured with replicator/docking/modules
- Windows 95 ready with PnP
- 32KB ROM for 51SL keyboard controller
- Gas-gauge for battery status information
- Various hot-keys for system control

Video Controller Chip

Video support is provided by the Neo Magic NM2090 VGA Controller Chip. This chip provides the following functions:

- PCI Bus support
- Simultaneous display supported

- Integrated 128-bit wide, 7Mbits Display Memory – 1.1MB of Video RAM
- Integrated programmable linear address feature accelerates GUI performance
- Supports NON-interlaced CRT monitors with resolutions up to 1024 x 768/256 colors
- Advanced power management features minimize power consumption during:
  - Normal operation
  - Standby mode
  - SUSPEND mode
  - VESA DPMS for monitor by 2090 (option)
- Graphic accelerator for WINDOWS application
- 3.3V/5V panel Interface support
  - bit BLT Engine
  - Memory mapped I/O
  - Linear addressing
  - Color expansion
  - 64x64 hardware cursor
  - 64x64 or 128x128 hardware ICON
- High resolution SVGA (800x600) panel
  - TFT displays support a maximum of 64K colors
  - DSTN displays support a maximum of 256 colors

I/O Ports

The system has the following I/O ports:

- One 9 pin Serial port, 16550A compatible
- One 25 pin Parallel port, EPP/ECP Capability
- One 15 pin CRT port
- 6 pin external full keyboard/numeric key-pad / PS/2 mouse connector
- One microphone in port & one speaker out port
- 240 pin docking connector that supports PS2 mouse port, AT-keyboard, 1S1P, CRT, audio ports, MIDI port, and AC jack.
- Built-in microphone
- Built-in IRDA SIR transmitter-receiver (on selected models)

Option Modules

The following options can be installed in the system:

- 6X CD-ROM Module
- Supplementary Battery

Components, Controls and Indicators

This section shows the locations and provides a description of the different components, controls, and indicators on your Digital notebook computer.

Front and Side Components (Panel Closed)

	Component	Description
❶	Removable Hard Drive	Easily removable and upgradable.
❷	Lid Release	Slide the two latches located on either side of the notebook toward you to open the LCD panel.
❸	Main Battery Module	Removable battery module that can be replaced with a charged battery.
❹	Expansion bay	Supports the FDD, CD-ROM and optional lithium-ion secondary battery module.



Figure 1-2 Right Front View (Panel Closed)

Rear View

	Component	Description
❶	Infrared Interface	Allows wireless data transfer between the notebook and other IR devices. (Selected models only)
❷	Serial (COM) Port	A serial device connects to this port.
❸	Parallel LPT Port	A parallel device, such as a printer, connects to this port.
❹	Reset Button	Using a pen or paper clip, press this button to reboot the system. All unsaved data will be lost.
❺	VGA Display Port	An external VGA or SVGA monitor connects to this port.
❻	Minidock Port	This 240-pin port allows you to connect the notebook to the Minidock Port Replicator.
❼	External Keyboard or PS/2 Mouse Port	An external keyboard or PS/2 mouse connects to this port.

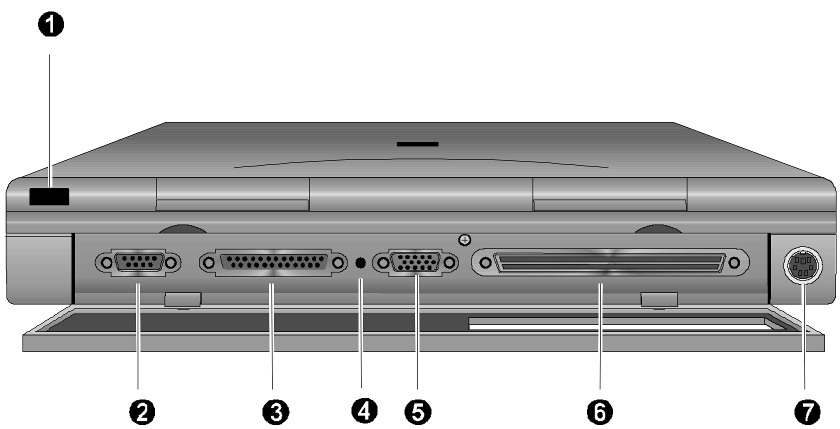


Figure 1-3 Rear View

Left and Side Components

	Component	Description
❶	Speaker-out Port	External speakers or headphones connect to this port. (Selected models only)
❷	External Mic Port	An external microphone connects to the notebook. (Selected models only)
❸	PC Card Lower Socket Eject Button	Ejects a PC Card Type I or Type II from the lower socket.
❹	PC Card Socket	Insert PC Card Type I, Type II or Type III cards into this socket.
❺	PC Card Upper Socket Eject Button	Ejects a PC Card Type I or Type II from the upper socket or to eject a Type III card.
❻	AC Power Port	The AC Adapter power cord connects to this port.
❼	Kensington Lock Port	A Kensington Lock cable connects to this port.
❽	Battery Charger LED	Lights amber when the battery is being charged. When the battery is fully charged the amber LED turns off.
❾	AC Power LED	Lights green when the notebook is operating on AC power.

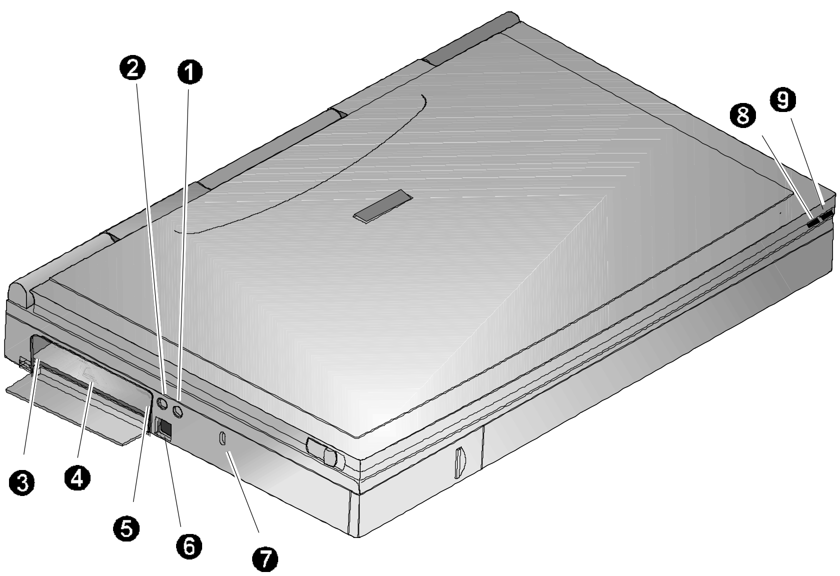


Figure 1-4 Left Front View (Panel Closed)

Right Front View (Panel Open)

	Component	Description
❶	Internal Microphone	Used to record music, voice and sound files.
❷	LCD Display	DSTN or TFT Super VGA back-lit display.
❸	LCD Status Display	Provides system operating status.
❹	Suspend/Resume Button	Turns the notebook on and toggles between the suspend/resume mode. Press the [fn + Suspend/Resume] to turn off the notebook.
❺	Suspend Lid Switch	Close the notebook's LCD lid to suspend the system. Pressing the Suspend/ Resume button again will resume the system.
❻	Internal Stereo Speakers	Used to hear sound files and system sounds through stereo speakers.
❼	Touch pad	A touch sensitive pointing device providing all the functions of a two-button mouse.

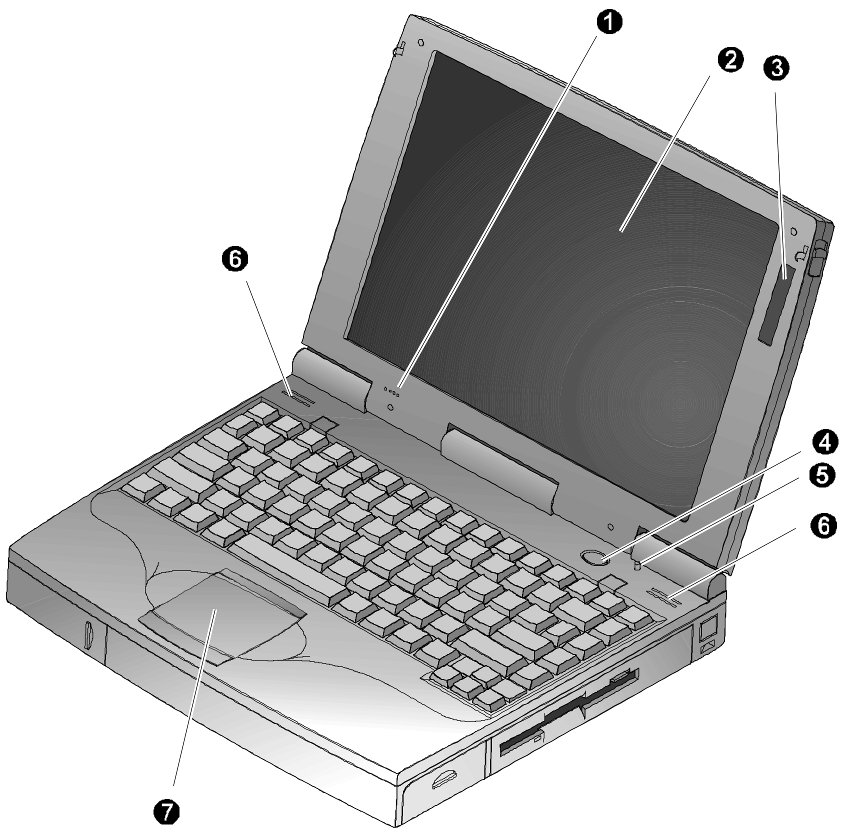
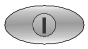
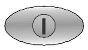
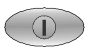
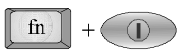


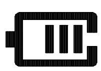
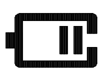
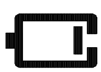
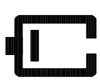
Figure 1-5 Right Front View (Panel open)

Controlling Power

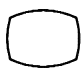
Unique to Digital notebook's, the suspend/resume button not only enables you to take advantage of the built-in power saving features but also turns the notebook on and off.

Action	How to...
On 	Press the Suspend/Resume button to turn the system on.
Suspend 	Press this button to place your system in Suspend mode.
Resume 	If you want to resume normal operation from the Suspend mode, press the Suspend/Resume button.
Off 	To completely shut off your notebook, press and hold [fn + suspend/resume] button until a system beep sounds, indicating that the system has been successfully turned off.
Suspend Lid Switch	Closing the LCD lid will also enter the notebook into Suspend mode.

Battery Charge Gauge (in LCD Status Display)

Icon	When Displayed, Indicates…
	76% to 100% battery operating time remaining. When the lines within this icon are rotating, it indicates that the battery is being charged. When the rotating stops, the battery is fully charged.
	51% to 75% battery operating time remaining.
	26% to 50% battery operating time remaining.
	Low battery to 25% battery operating time remaining. The system's warning beep will sound. Save your work, replace the low battery with a fully charged one or use an AC power source to run the notebook. The [fn + F7] keys shut off the warning beep. It also mutes all audio.
	System has ceased charging the battery. An abnormal condition exists causing the core of the battery to reach its maximum temperature and battery charging has been suspended..

LCD Status Display

Icon	When Displayed Indicates...
	Embedded Numeric Keypad is enabled by hot key combination. If blinking, the system is prompting you to enter your resume from suspend password.
	Scroll Lock is enabled by a hot key combination.
	Num Lock is enabled by a hot key combination.
	Caps Lock is enabled.
	Hard Disk Drive/CD-ROM is being accessed by the system.
	Floppy Disk Drive is being accessed by the system.
	The external monitor (CRT) or Simul mode is enabled. If blinking, the system is in Save to RAM mode.

Keyboard Hot Keys

Hot keys are activated by holding down the [fn] key (located in the lower left corner of the keyboard) and pressing the desired function key.

[fn] +	Function
[fn + esc]	Places the computer in Standby Mode.
[fn + F1]	Decreases brightness level.
[fn + F2]	Increases brightness level.
[Fn + F3]	Places the system in to suspend to disk mode (0V suspend)
[fn + F4]	Enables and disables the notebook's external display port and the LCD display. There are three display modes: • LCD Display • LCD Display and External Monitor (Simul scan) • External Monitor only Each time you press this hot key the computer changes to the next display setting.
[fn + F5]	Decreases the display contrast (DSTN screens only).
[fn + F6]	Increases the display contrast (DSTN screens only).
[fn + F7]	Enables or disables audio/speaker output including system beep indicating low battery.
[fn + F8]	Enables and disables the keyboards embedded key pad. This hot key is used in conjunction with the [F9] hot key to control the embedded keypad.
[fn + F9]	Toggles Num Lock on and off. This hot key is used in conjunction with the [F8] hot key to control the embedded keypad.
[fn + F10]	Toggles Scroll Lock on and off. The state of the Scroll Lock feature is shown in the LCD Status Display.
[fn + home/pause]	Pauses the display output. Pressing any other key on the keyboard causes the display output to resume.
[fn + end/break]	If Break is enabled, pressing this hot key sends a system break.
[fn + PrScr/ SysReq]	Determined by application software.
[fn + ↑]	Increases the audio volume.
[fn + ↓]	Decreases the audio volume.

Related Information

Documentation

Digital HiNote VP 500 Series User's Guide	ER-PB1WF-UA
Digital HiNote VP 500 Series Quick Reference Card	ER-PB1WF-BA
Quick Setup Guide	ER-PB1WF-IM

World Wide Web

Information such as drivers, BIOS updates, and on-line documentation is available from Digital's World Wide Web Site. The URL for the site is:
HTTP://WWW.PC.DIGITAL.COM/

Bulletin Boards

Digital maintains a BBS for its customers. This BBS has information such as drivers, BIOS updates, and on-line documentation. The BBS number is: (508)496-8800

2
System BIOS

This chapter provides information related to the system BIOS and its Setup program.

BIOS Setup Program

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that is used to make changes to the system's configuration and tailor the operation of the notebook computer. It is a ROM-based (Read only Memory) configuration utility that displays the system's configuration status and provides a tool to set system parameters. These parameters are stored in non-volatile battery backed-up CMOS RAM, which saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

Note

The CMOS battery receives a charge when the system is being operated on AC power. If the system is off for more than one year, the CMOS battery will drain and the ROM data will be lost.

The Setup Program is menu driven and can be used to configure items such as:

- Hard drives, diskette drives and peripherals
- Password protection from unauthorized use
- Power Management Features

The settings made in the Setup program affect how the notebook computer performs. It is important, to understand how the different Setup options affect the operation of the notebook computer.

When turning on the Notebook for the first time you may get a message prompting you to run the BIOS Setup program. A warning message may appear on the screen if the hardware configuration is changed or the Power On Self-Test (POST) fails. This message will inform you of any errors or invalid settings and prompt you to run the Setup program to correct the problem.

Accessing the BIOS Setup Program

To access the BIOS Setup program, press the F2 key when prompted during bootup. There are three essential elements to the BIOS screens (Figure 2-1): Menu Bar, Item Specific Help Window and Legend Bar.

```
Phoenix NoteBIOS Setup - Copyright Phoenix Technologies Ltd.
 Main  Peripherals  Security  Power Savings Exit

 Date:                 [11/11/1995]             Item Specific Help
 Time:                 [14:06:00]
 Diskette A:           [1.44 MB, 3.5"]      <Tab>, <Shift-Tab>, or
 Hard Disk Drive       [C: 1080 MB]         <Enter> selects field.

 Boot Sequence         [Diskette First]

 Total Memory:             8 MB
 Video Memory:          1152 KB

F1  Help   ↑↓  Select Item  -/+ Change Values        F9  Setup Defaults
ESC Exit   ←→  Select Menu  Enter Select ▶ Sub-Menu   F10 Previous Values
```

Figure 2-1 BIOS Setup Main Menu

Menu Bar

The top of the screen (Figure 2-1) has a menu bar with the following selections:

Main	Changes to the basic system configuration are made from within this menu.
Peripherals	Use this menu to enable and make changes to the system port addresses and modes.
Security	Sets System and Boot/Resume password.
Power	From within this menu, you will be able to configure and enables Power Management features.
Exit	Use this menu to save changes, set factory defaults and exit the Setup program.

Item Specific Help

Note that on the right side of each BIOS Setup screen, there is a section labeled *Item Specific Help.* While moving through the Setup program, note that explanations for the currently highlighted field appear in the *Item Specific Help* window.

Legend Bar

At the bottom of the BIOS Setup screen there is a legend bar. The keys identified on the legend bar are used to navigate through individual setup menus. The following table lists the keys found in the Legend Bar with their corresponding alternates and functions.

Legend Key	Alternate Key	Function
F1	Alt + H	Displays the General Help window.
ESC		Exits the current menu and returns you to the previous screen.
← or →		Selects a different menu bar items.
↑ or ↓		Moves the cursor up and down between fields.
<Tab>		Cycles the cursor forward through the particular highlighted field. If the field has only one value, the Tab key will move the selection cell down to the next field.
<Shift + Tab>		Cycles the cursor backward through the particular highlighted field . If the field has only

Legend Key	Alternate Key	Function
		one value, the [Tab + Shift] key combination will move the selection cell up to the previous field.
- minus key	F5	Scrolls backwards through the values for the highlighted field.
+ plus key	F6	Scrolls forward through the values for the highlighted field.
F9		Sets the fields for the current active menu to their default values.
F10		Sets the fields for the current active menu to their previous values.
<Enter>		Executes commands or selects a submenu.

Launching Submenus

Some menu items or fields an associated submenu. This is indicated with a pointer that looks like a triangle on its side. For example, open the Peripherals Menu and you will see a pointer that resembles a triangle on its side next to the Integrated Peripherals field. This symbol indicates that a submenu can be launched from this field. A submenu contains additional options. To launch a submenu:

1. Use the navigation keys to select the menu item that has a submenu and press <Enter> to open the submenu.
2. Use the navigation keys to move around the screen and make the needed configuration changes.
3. When finished making changes, press the [ESC] key to exit the submenu and return to the main screen.

General Help

In addition to the Item Specific Help window, the BIOS setup program also provides a General Help screen. This screen can be accessed from any menu by pressing the F1 key or [Alt + H]. The General Help screen lists the legend keys with their corresponding alternates and functions.

When a scroll bar appears to the right of a help window, this indicates there is more information to be displayed. Use the PgUp and PgDn keys or the up and down arrow keys (↑ ↓)to scroll through the entire help document. Press <Home> to display the first page, press <End> to go to the last page. To exit the help window, press <Enter> or the <ESC> key.

The Main Menu

The following settings are available in the Main Menu screen of the BIOS Setup Program (Figure 2-2).

```
Phoenix NoteBIOS Setup - Copyright Phoenix Technologies Ltd.
 Main  Peripherals  Security  Power Savings Exit

  Date:                  [11/11/1995]            Item Specific Help
  Time:                  [14:06:00]
  Diskette A:            [1.44 MB, 3.5"]       <Tab>, <Shift-Tab>, or
  Hard Disk Drive        [C: 1080 MB]          <Enter> selects field.

  Boot Sequence          [Diskette First]

  Total Memory:              8 MB
  Video Memory:           1152 KB

F1  Help   ↑↓ Select Item  -/+ Change Values        F9  Setup Defaults
ESC Exit   ←→ Select Menu  Enter Select ▶ Sub-Menu  F10 Previous Values
```

Figure 2-2 The BIOS Setup Main Menu

Field	Settings	Description
Date	Enter current date: month, day, year format	Sets the system date.
Time	Enter current time: hour, minute, second format	Sets the system time.
Diskette A	2.88 MB, 3½" 1.44 MB, 3½"* 720 KB, 3½" 1.2 MB, 5¼" 360 KB, 5¼" Not Installed	Sets the capacity and size of the FDD
Hard Disk Drive	Display only field	Indicates the size of your notebook’s hard drive.
Boot Sequence		Instructs the system where to look at boot up.
	Diskette First *	The system will attempt to boot from drive A. If the drive is empty of a non-system disk is present, the system will attempt to boot from drive C.
	Hard Disk Only	The system will attempt to boot from the hard disk, drive C, only.
Total Memory	Display only field	Indicates the amount of total (RAM) memory.
Video Memory	Display only field	Indicates the amount of system video memory.

* Default value.

The Peripherals Menu

Notice the pointer icon next to the words Integrated Peripherals. This indicates the presence of a submenu.

The following settings are available in the Peripherals Menu screen of the BIOS Setup Program (Figure 2-3).

```
Phoenix NoteBIOS Setup - Copyright Phoenix Technologies Ltd.
          Peripherals

 ► Integrated Peripherals                     Item Specific Help
                                              Set COM port address.

   Video Mode            [Simul Mode]

   Touch pad:            [Enabled]

F1  Help  ↑↓  Select Item  -/+ Change Values        F9  Setup Defaults
ESC Exit  ←→  Select Menu  Enter Select ► Sub-Menu  F10 Previous Values
```

Figure 2-3 The BIOS Setup Peripherals Menu

Field	Settings	Description
Integrated Peripherals	Submenu	Sets the following port addresses and modes: – Serial Port – Infrared Port – Parallel Mode
Video Mode		Sets the Video mode
	Simul Mode	Allows simultaneous viewing of externally connected monitor (CRT) and the notebook's LCD display.
	LCD Mode*	Allows viewing of the notebook's LCD only.
	CRT Mode	Allows viewing of the CRT only.
Touch Pad	Enabled *	Connecting a mouse to the serial port will disable the Touch Pad.
	Disabled	

* Default value.

Integrated Peripherals (Peripherals submenu)

Move the highlighted cell to this field and press <Enter> to open the submenu.

The following settings are available in the Integrated Peripherals Menu screen of the BIOS Setup Program(Figure 2-4).

```
Phoenix NoteBIOS Setup - Copyright Phoenix Technologies Ltd.
        Advanced
+-----------------------------------------------------+------------------------+
|          Integrated Peripherals                     |   Item Specific Help   |
+-----------------------------------------------------+------------------------+
|                                                     | Set COM port address.  |
|  Serial Port:           [COM 1]                     |                        |
|  Infrared  Mode:        [Disable]                   |                        |
|  Parallel Mode:         [Bi-Directional]            |                        |
|                                                     |                        |
+-----------------------------------------------------+------------------------+
F1  Help  ↑↓  Select Item   -/+ Change Values          F9  Setup Defaults
ESC Exit  ←→  Select Menu   Enter Select ▶ Sub-Menu   F10 Previous Values
```

Figure 2-4 The BIOS Setup Integrated Peripherals Menu

Field	Settings	Description
Serial Port	Auto Disabled COM 1 (3F8h - IRQ4) * COM 2 (2F8h - IRQ3) COM 3 (3E8h - IRQ4) COM 4 (2E8h - IRQ3)	Enables, configures or disables the serial port. Set the serial port to disable to increase the battery run time.
Infrared	Auto Disabled* COM 1 (3F8h - IRQ4) COM 2 (2F8h - IRQ3) COM 3 (3E8h - IRQ4) COM 4 (2E8h - IRQ3)	Enables, configures or disables the infrared port. Set the infrared port to disable to increase the battery run time.
Parallel Mode	Disabled	Disables the parallel port.
	Normal	Parallel port is set for data-out mode only.
	Bi-Directional *	Parallel port permits both data output and data input.
	EPP Mode (Extended Parallel Port)	Operates only with EPP aware peripherals.
	ECP (Extended Capabilities)	Operates only with ECP aware peripherals. See your parallel device user's guide.

* Default value.

The Security Menu

Select Security from the menu bar to display the following menu (Figure 2-5).

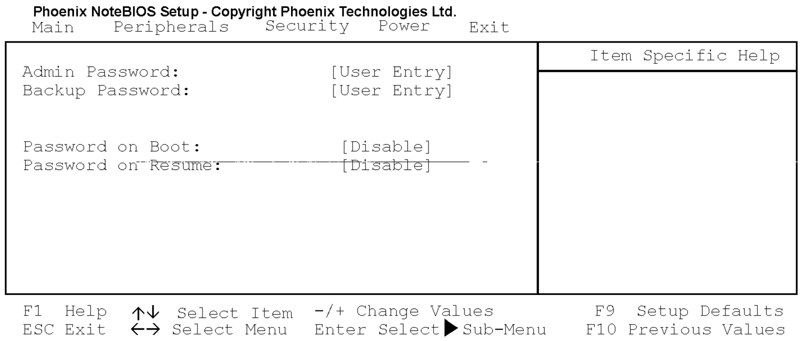


Figure 2-5 The BIOS Setup Security Menu

Field	Settings	Description
Admin. Password :	[Press Enter]	Setting the Admin. Password will limit unauthorized access to the notebook, including the BIOS Setup Program..
Backup Password	[Execute]	Backs up Admin. password to diskette.
Password on Boot	Enabled Disabled *	When enabled, the system will require the Admin. Password during system boot
Password on Resume	Enabled Disabled *	When enabled, the system will required the Admin. Password when resuming from suspend. The keypad icon in the LCD Status Display will blink, prompting for the Password.

* Default value.

Setting Admin. Password

To set the Admin. Password, move the highlighted cell to the Admin. Password field and press <Enter>. The following dialogue box will appear:

Set Admin. Password	
Enter new password:	[ ]
Confirm new password:	[ ]

1. Type in your password and press <Enter>. The password can be up to seven alphanumeric characters. Symbols and other keys are ignored.
2. Type the password in a second time to confirm. Press <Enter> a second time. The System Password is now set.

Changing Admin. Password

To change the Admin. Password, move the highlighted cell to the Admin. Password field and press <Enter>. When the Admin. Password dialogue box appears, enter the new password. Enter it a second time to confirm. The new password is now set.

Disabling Admin. Password

To disable the Admin. Password:

1. Open the Admin. Password dialogue box.
2. Continue to press the <space bar> until the cursor moves to the end of the Confirm new password field.
3. Continue to press the <back space> key until the cursor returns to the beginning of the Enter New Password field. Press <Enter>. This erases the password.
4. Complete the same steps in the New Password field to confirm the task. The old password is erased and Admin. Password is disabled.

The Power Menu

The Power Menu (Figure 2-6) allows you to enable and adjust the notebook's power saving features. Enabling these features will extend the battery run time.

```
Phoenix NoteBIOS Setup - Copyright Phoenix Technologies Ltd.
 Main    Peripherals  Security    Power     Exit

                                                    Item Specific Help
 Power Savings:              [Customize]
 AC Power Save:              [On]
 Standby Time-out:            [3 min.]
 Suspend Time-out:            [3 min.]
 Suspend to Disk Time-out     [10 min.]

 Hard Disk Time-out           [2 min.]
 DIM Mode Time-out           [30 sec.]

 Alarm Resume:               [Off]
 Alarm Resume Time:          [00:00:00]

F1  Help  ↑↓ Select Item  -/+ Change Values          F9  Setup Defaults
ESC Exit  ←→ Select Menu  Enter Select ▶ Sub-Menu    F10 Previous Values
```

Figure 2-6 The BIOS Setup Power Menu

Field	Settings	Description
Power Savings		Sets the Power Management Mode.
	Off	Disables all Power Management
	Customize *	Allows you to customize the Power Management fields (Standby, Suspend, Suspend to Disk, Hard Disk Time-out) to suit your individual work needs.
	Maximum Performance	Power Management fields will be set with pre-defined values to provide best system performance with some power conservation.
	Maximum Battery Life	Power Management fields will be set with pre-defined values to ensure maximum battery run time.
AC Power Save	On * Off	When enabled all system power management is enabled, when operating on AC power. If disabled, all system power management is disabled when operating on AC power.
Standby Time-out	Disabled 1 Min. 2 Min. 3 Min. * 5 10, 15, 30 Min.	Indicates the amount of time the system needs to be idle before entering Standby mode. In order to make customized changes to this field, Power Savings must be set to Customize.
Suspend Time-out	Disabled 1 Min. 2 Min. 3 Min. * 5, 10, 15, 30 Min.	Indicates the amount of time the system needs to be idle before entering Suspend (to RAM) mode. Power Savings must be Customize to change these values.
Suspend-to-Disk Time-out	Disabled 1, 2, 3, 5 Min. 10 Min. *	Indicates the amount of time the system needs to be idle before entering Suspend-to-Disk mode. In order to make customized changes to this

Field	Settings	Description
	15, 20, 30 Min.	field, Power Savings must be set to Customize.
Hard Disk Time-Out	Disabled 1 Min. 2 Min. * 3 Min. 5, 10, 15, 20 Min.	Indicates the amount of time the hard disk needs to be inactive before it is turned off. In order to make customized changes to this field, Power Savings must be set to Customize.
DIM Mode Time-out	Disabled 15 Sec. 30 Sec. * 60 Sec.	Indicates the amount of time the keyboard needs to be inactive before LCD panel brightness is gradually decreased.
Alarm Resume	Off * On	Enables or Disables Alarm Resume Time
Alarm Resume Time	Enter time in a 24 hour format. 13:00 = 1:00 p.m.	Allows you to specify the time the system will resume.

* Default value.

The Exit Menu

Enter the Exit Menu (Figure 2-7) to save changes, set factory defaults or exit the Setup program.

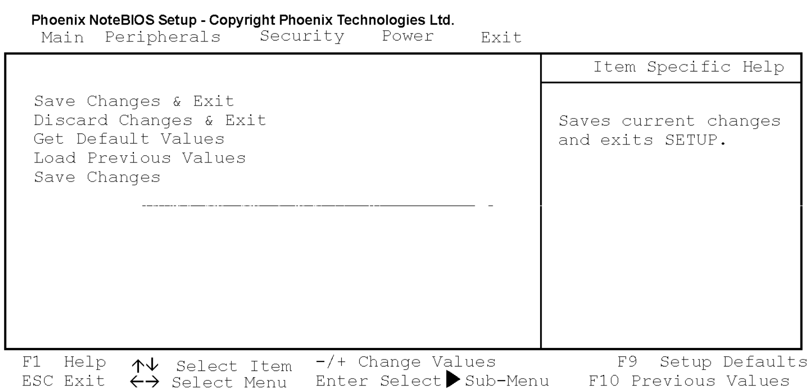


Figure 2-7 The BIOS Setup Exit Menu

Field	Action	Description
Save Changes & Exit	<Enter>	Saves the current changes and exits the BIOS Setup Program.
Discard Changes & Exit	<Enter>	Discards the current changes and exits the BIOS Setup Program.
Get Default Values	<Enter>	Loads the factory default values for each of the fields in the BIOS Setup Program. To keep default values and exit the BIOS Setup Program, you must move the highlighted cell to the Save Changes & Exit field and press the <Enter> key.
Load Previous Values	<Enter>	Discards any changes made during the current BIOS configuration session, and loads the prior sessions values. You cannot exit the BIOS through this field.
Saves Changes	<Enter>	Saves the changes made during the current BIOS configuration session. You cannot exit the BIOS through this field.

Modifying Flash BIOS

The Digital HiNote VP 500 Series notebook computer has a flash updatable system BIOS. As improvements are made to the system BIOS they are made available from Digital's Web site or BBS.

Web Site: HTTP://WWW.PC.DIGITAL.COM

BBS: (508)496-8800

Updating Flash BIOS

The Flash BIOS update come as a self-extracting file that creates a bootable floppy disk. After downloading the update procedure you restore the update image to floppy disk. This procedure creates a bootable floppy with the PHLASH update program. The BIOS update is provided with a set of instructions on how to use it.

Before running the BIOS update procedure set up the notebook computer as follows:

- Connect the AC adapter. For the BIOS update to run the system has to be running from its AC power source.
- Remove any peripheral devices from the system:
  - PCMCIA devices
  - Port Replicator
- Set the System BIOS to its factory default settings

To run the BIOS update:

1. Insert the BIOS Update disk in the floppy drive.
2. Cold boot the system.
   a) Press the [fn] + Suspend/Resume button to power off the system
   b) Press the Suspend/Resume button to cold boot the system
3. Follow the instructions provided by the update program.

Restoring the Flash BIOS

If for some reason the system BIOS becomes corrupted the BIOS chip located under the DC-to-DC converter on the system motherboard will have to be replaced.

3

Troubleshooting

This chapter provides a systematic method of isolating problems with the Digital HiNote VP 500 series of notebook computers. It is assumed that you have a basic understanding of DOS-based computer systems as well as a knowledge of standard troubleshooting procedures. This manual is written under the assumption that the problems are indeed related to the notebook computer itself. The improper usage of the system and application software problems are excluded in this chapter.

The system BIOS power on self-tests (POST) are integral to the system and detect certain errors with the system board. They use a series of beep codes to identify certain system board problems.

The troubleshooting procedures when followed step by step, can help isolate system problems.

Troubleshooting Tips

In general, troubleshooting involves an organized system of approach to problem solving. Try to isolate the problem and identify the defective device (hardware) or improper setting (software). When you have a problem, you should do a thorough visual inspection of the Notebook.

- If none of the indicators are lit and you cannot hear the HDD spinning, then the Notebook is probably not receiving power.
- Make sure the power cord is plugged in, and the AC adapter is securely connected.
- If you are using a power strip or surge protector, ensure that these devices are turned on.

Often problems are caused by improperly connected cables.

- If you are using peripherals such as the mouse or keyboard, make sure they are properly connected to their respective ports. Ensure that none of the connectors' pins are bent or broken.
- Check all cables connected to the Notebook. If any are cut, frayed, or damaged in any way, replace them right away. Never use a damaged cable. A damaged cable is not only a fire hazard, it may also cause a short circuit, resulting in irreparable damage to the Notebook.
- Check all internal connections to ensure that they are secure. Often problems can occur because a connection is loose or backwards. Most connections have a "key" to ensure that they go in correctly, but some may not have a key.

Verify that all test equipment works before using it to test a malfunctioning component (for example, a floppy disk drive).

Verify that a component is the only malfunctioning part of the computer by replacing the malfunctioning component with a good one, and then try to run the system. For example, if you have tested an FDD in a test computer and found it to be bad, you should also try a good FDD in the malfunctioning FDD’s computer to be sure that another component (such as the FDD controller) is not bad as well.

As with assembly and disassembly, make sure you have adequate lighting, the right tools, and a stable clean working environment.

The examples that follow provide useful tips and information that will help isolate and solve some of the more common problems that may be encountered.

System Start Failure

When you turn on the computer, the system hangs before completing or starting the POST (power on self test). Power supply failure, post failure, and boot-up failure can result in a system start failure.

Power Supply Failure

Problem	Troubleshooting Procedure
You turn on the power switch and the following conditions apply: • There is no panel display • There is no noise coming from the HDD • The power indicator light is off.	If you are operating the Notebook using the battery: • The battery connection is loose. Replace the battery. • The battery power is depleted or the battery is bad. Plug in the AC adapter, or replace the battery. If you are operating the Notebook using the AC adapter: • Check that the AC adapter is plugged into an operational power supply. • Check that the AC adapter is connected securely to the Notebook’s AC adapter socket. • Check to see if the Power LED on the computer is lit. If it is not lit, then the AC adapter is bad. Replace the AC adapter, and test the Notebook again. Press the system's "Reset Button" located on the back of the unit between the serial and parallel port connectors. If the above items are functioning, then the Notebook’s internal power circuit is probably damaged. Check the power circuit of the Notebook.

Boot-up Failure

Problem	Troubleshooting Procedure
You turn on the Notebook and the following conditions apply: • The Notebook's power is on. • There is no screen display	Turn on the power switch: • Check the DRAM connections to be sure that they are secure. • Check the LCD connections. • Check the system board power circuit.

Post Failure

Problem	Troubleshooting Procedure
You turn on the computer and the following happens: • There is power to the system. • The HDD seems to be spinning. • The screen is operational, and error codes and messages are displayed.	• A POST failure usually indicates a keyboard, memory, or HDD failure. • Check the error code or message against the error codes and messages in this chapter..

LCD Panel Failure

Problem	Troubleshooting Procedure
You turn on the computer and one of the following conditions apply: • The system is working, but there is no LCD panel display. • The system is working, but the LCD panel display vertical or horizontal lines. • The backlight comes on, but there is no display. • There is a display, but you have garbled characters on the screen.	• Make sure that the LCD cables are securely connected. • Make sure that the LCD cables are securely connected to the inverter. • If the cables are securely connected and the LCD still doesn't work, replace the LCD panel and test the system again. • If the display is garbled, there is probably a VGA chip failure. Replace the motherboard.

CRT Failure

Problem	Troubleshooting Procedure
The Notebook has power, the Notebook's LCD panel is working and one of the following conditions apply: • The Notebook's LCD panel is working. • There is no display on the CRT. • The color of the CRT is wrong. • There is a display, but the display is not stable.	• Make sure the CRT output is enabled. • Make sure that the CRT's power is on. • Make sure that the CRT's power cables are securely connected, and that there are no bent or damaged pins on the connectors. • Make sure that the CRT to Notebook cable connection is secure. Check the CRT port on the Notebook to make sure the connection is secure, and that there are no damaged pins or connectors. • If the CRT still doesn't work, change to a different CRT and try again. • If the color is bad, adjust the Monitor's color controls (if any).

Notebook Keyboard Failure

Problem	Troubleshooting Procedure
The Notebook is fully powered-on. However, when pressing on the keyboard, one of the following events occurs: • Pressing on the key doesn't have any effect. • Incorrect characters are displayed on the screen. • One stroke of a key produces too many characters on the screen.	• Make sure that the keyboard cable is securely connected into the keyboard connector. • Check the keyboard circuit. • Replace the keyboard and check again. • If incorrect characters are displayed, check the COUNTRY.SYS settings in the operating system to see if an incorrect language is being used by the system. • Replace the keyboard controller BIOS chip located in the memory compartment on the bottom of the system unit.

External Keyboard or PS/2 Mouse Failure

Problem	Troubleshooting Procedure
The Notebook's power is on, and the keyboard is working. One of the following conditions occur: • Pressing keys on the external keyboard has no effect. • Pressing the key on the external keyboard gives incorrect characters. • The mouse cursor on the screen doesn't move in conjunction with the external mouse.	• Make sure that the external mouse or keyboard's connection to the Notebook's PS/2 mini-DIN connector is secure. • Replace the external mouse or keyboard and try again. • If the system still doesn't work, test the mini-DIN keyboard circuit. • If incorrect characters are displayed, check the COUNTRY.SYS settings in DOS to see if an incorrect language is being used by the system.

HDD Failure

Problem	Troubleshooting Procedure
When you try to access the HDD, one of the following conditions occur: • There is a message indicating that the HDD doesn’t exist. • You can’t read from the HDD. • You can’t write to the HDD.	• Check to make sure that the BIOS settings are correct. Refer to Chapter 2 for BIOS information. • Make sure that the HDD connection is secure. • Install the HDD into another Notebook and test it. • If the HDD works in a test Notebook, the HDD controller on the motherboard is probably bad. Test the motherboard.

FDD Failure

Problem	Troubleshooting Procedure
The Notebook’s power is on. The HDD is functioning correctly. When you try to access the FDD, one of the following conditions occurs: • You can’t read from the FDD. • You can’t write to the FDD. • You can’t hear the FDD motor spinning, and the LED indicator light isn’t on.	• Make sure the FDD is properly seated. • Switch to a different floppy disk and try again. Make sure that the floppy isn’t write protected. • Clean the FDD’s heads. • Change the FDD and test again. • If the FDD is OK, than there is probably an I/O chipset failure. Replace the main board.

Battery Failure

Problem	Troubleshooting Procedure
The Notebook’s AC power works. When trying to use battery power, the Notebook doesn’t operate. However, when the AC Adapter is connected, the battery charge indicator flashes.	• Make sure that the battery contacts are in good condition. • Make sure that the battery terminals are clean. If need be, clean the terminals with contact cleaner. • Change the battery and try again. • Check to make sure that the AC power supply (the AC adapter and AC adapter cord) are OK. If they are not supplying the correct voltage, it could damage the system.

Check Points and Error Messages

At the beginning of each POST routine, the BIOS outputs the test point error code to I/O address 80h. Use this code during troubleshooting to establish at what point the system failed and what routine was being performed.

If the BIOS detects a terminal error condition, it halts POST after:

- Issuing a terminal error beep code and
- Attempting to display the error code on upper left corner of the screen and on the port 80h LED display

If the system hangs before the BIOS can process the error, the code displayed at port 80h is that of the last test performed. In this case, the screen does not display the error code.

Phoenix BIOS Test Points

The following is a list of the checkpoint codes written at the start of each test and the beep codes issued for terminal errors:

Code	Beeps	POST Routine Description
02		Verify Real Mode
04		Get CPU type
06		Initialize system hardware
08		Initialize chipset registers with initial POST values
09		Set in POST flag
0A		Initialize CPU registers
0C		Initialize cache to initial POST values
0E		Initialize I/O
0F		Initialize the local bus IDE
10		Initialize Power Management
11		Load alternate registers with initial POST values
12		Jump to UserPatch0
14		Initialize keyboard controller
16	2-2-3	BIOS ROM checksum
18		8254 timer initialization
1A		8237 DMA controller initialization
1C		Reset Programmable Interrupt Controller
20	3-1-1	Test DRAM refresh
22	3-1-3	Test 8742 Keyboard Controller
24		Set ES segment register to 4 GB
28		Autosize DRAM
2A		Clear 512K base RAM
2C	3-4-1	Test 512K base address lines
2E	3-4-3	Test 512K base memory
30		Base 64K RAM Error
32		Test CPU bus-clock frequency
34		Test CMOS RAM
35		Initialize alternate chipset registers
37		Reinitialize the chipset
38		Shadow system BIOS ROM

Code	Beeps	POST Routine Description
39		Reinitialize the cache
3A		Autosize cache
3C		Configure advanced chipset registers
3D		Load alternate registers with CMOS values
40		Set Initial CPU speed
42		Initialize interrupt vectors
44		Initialize BIOS interrupts
46	2-1-2-3	Check ROM copyright notice
47		Initialize manager for PCI Option ROMs
48		Check video configuration against CMOS
49		Initialize PCI bus and devices
4A		Initialize all video adapters in system
4C		Shadow video BIOS ROM
4E		Display copyright notice
50		Display CPU type and speed
51		Initialize EISA board
52		Test keyboard
54		Set key click if enabled
56		Enable keyboard
58	2-2-3-1	Test for unexpected interrupts
5A		Display prompt "Press F2 to enter SETUP"
5C		Test RAM between 512 and 640k
60		Test extended memory
62		Test extended memory address lines
64		Jump to UserPatch1
66		Configure advanced cache registers
68		Enable external and CPU caches
6A		Display external cache size
6C		Display shadow message
6E		Display non-disposable segments
70		Display error messages
72		Check for configuration errors
74		Test real-time clock
76		Check for keyboard errors
7C		Set up hardware interrupt vectors
7E		Test coprocessor if present
80		Disable onboard I/O ports
82		Detect and install external RS232 ports
84		Detect and install external parallel ports
86		Re-initialize onboard I/O ports
88		Initialize BIOS Data Area
8A		Initialize Extended BIOS Data Area
8C		Initialize floppy controller
90		Initialize hard-disk controller
91		Initialize local-bus hard-disk controller

Code	Beeps	POST Routine Description
92		Jump to UserPatch2
94		Disable A20 address line
96		Clear huge ES segment register
98		Search for option ROMs
9A		Shadow option ROMs
9C		Set up Power Management
9E		Enable hardware interrupts
A0		Set time of day
A2		Check key lock
A4		Initialize typematic rate
A8		Erase F2 prompt
AA		Scan for F2 key stroke
AC		Enter SETUP
AE		Clear in-POST flag
B0		Check for errors
B2		POST done-prepare to boot operating system
B4		One beep
B6		Check password (optional)
B8		Clear global descriptor table
BC		Clear parity checkers
BE		Clear screen (optional)
BF		Check virus and backup reminders
C0		Try to boot with INT 19
DO		Interrupt handler error
D2		Unknown interrupt error
D4		Pending interrupt error
D6		Initialize option ROM error
D8		Shutdown error
DA		Extended Block Move
DC		Shutdown 10 error
E2		Initialize the chipset
E3		Initialize refresh counter
E4		Check for Forced Flash
E5		Check HW status of ROM
E6		BIOS ROM is OK
E7		Do a complete RAM test
E8		Do OEM initialization
E9		Initialize interrupt controller
EA		Read in the bootstrap code
EB		Initialize all vectors
EC		Boot the Flash program
ED		Initialize the boot device
EE		Boot code was read OK

If the BIOS detects error 2C, 2E, or 30 (base 64K RAM error), it displays an additional word of information reflecting the bit or address line that failed. For example, if "2C 0002" is displayed, address line 1 (represented by bit one) has failed. If "2E 1020" is displayed, then data bits 12 and 5 have failed in the upper 16 bits.

The BIOS sends the same information to the port 80h LED display. The check point code is followed by a delay, the high order byte, another delay, and then the low order byte of the error. This is be repeated continuously.

Warning Messages

The following is an alphabetic list of error and status messages which the PhoenixBIOS can generate and an explanation of each message. Many of the messages below refer to the built in Setup program.

Message	Description
nnnn Cache SRAM Passed	nnnn is the amount of system cache in kilobytes successfully tested.
Diskette drive A error	Drive A: is present but fails the BIOS POST diskette tests. Check to see that the drive is defined with the proper diskette type in Setup and that the diskette drive is attached correctly.
Entering SETUP	Starting Setup program
Extended RAM Failed at offset: nnnn	Extended memory not working or not configured properly.
nnnn Extended RAM Passed	nnnn is the amount of RAM in kilobytes successfully tested.
Failing Bits: nnnn	The hex number nnnn is a map of the bits at the RAM address (in System, Extended, or Shadow memory) which failed the memory test. Each 1 (one) in the map indicates a failed bit.
Fixed Disk 0 Failure or Fixed Disk 1 Failure or Fixed Disk Controller Failure	Fixed disk is not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup to ensure that the fixed-disk type is correctly identified.
Incorrect Drive A type run SETUP	Type of floppy drive A: not correctly identified in Setup.
Invalid NVRAM media type	Problem with NVRAM access.
Keyboard controller error	The keyboard controller failed test. You may have to replace keyboard or controller.
Keyboard error	Keyboard not working.
Keyboard error nn	BIOS discovered a stuck key and displays the scan code for the stuck key.
Keyboard locked Unlock key switch	Unlock the system to proceed.
Monitor type does not match CMOS	Run SETUP Monitor type not correctly identified in Setup
Operating system not found	Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.
Parity Check 1 nnnn Parity error found in the system bus	BIOS attempts to locate the address but failed and display it on the screen.
Parity Check 2 nnnn Parity error found in the I/O bus	BIOS attempts to locate the address but failed and display it on the screen.

Message	Description
Press <F1> to resume, <F2> to Setup	Displayed after any recoverable error message: Press <F1> to start the boot process or <F2> to enter Setup and change any settings. <F2> Press <F2> to enter SETUP Optional message displayed during POST.
Previous boot incomplete	Default configuration used
Previous POST did not complete successfully	POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail.
Real time clock error	Real-time clock fails BIOS test. May require board repair.
Shadow RAM Failed at offset: nnnn	Shadow RAM failed at offset nnnn of the 64k block at which the error was detected.
nnnn Shadow RAM Passed	Where nnnn is the amount of shadow RAM in kilobytes successfully tested.
System battery is dead - Replace and run SETUP	The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.
System BIOS shadowed	System BIOS copied to shadow RAM.
System cache error	Cache disable RAM cache failed the BIOS test. BIOS disabled the cache.
System CMOS checksum bad - run SETUP	System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. Run Setup and reconfigure the system.
System RAM Failed at offset: nnnn	System RAM failed at offset nnnn of in the 64k block at which the error was detected.
nnnn System RAM Passed	nnnn is the amount of system RAM in kilobytes successfully tested.
System timer error	The timer test failed. Requires repair of system board.
UMB upper limit segment address: nnnn	Displays the address of the upper limit of Upper Memory Blocks, indicating released segments of the BIOS which may be reclaimed by a virtual memory manager.
Video BIOS shadowed	Video BIOS successfully copied to shadow RAM.

4

FRU Replacement

This chapter provides detailed procedures for replacing the Digital HiNote VP 500 series notebook computer Field Replaceable Units (FRUs). Unless otherwise noted the replacement procedures for the FRUs are the reverse of the removal procedures.

Required Tools

You will need the following tools to remove and replace the HiNote VP 500 series FRUs.:

- #0 and #1 Phillips Head Screwdrivers
- 3/16 inch and 7/32 inch Nut Drivers

Removing the Battery

The battery is located on the right side of the system unit (Figure 4-1).

To remove the battery pack:

1. Slide the battery lock/release clip to the release position.
2. Pull the Battery Pack out of the system unit as shown.

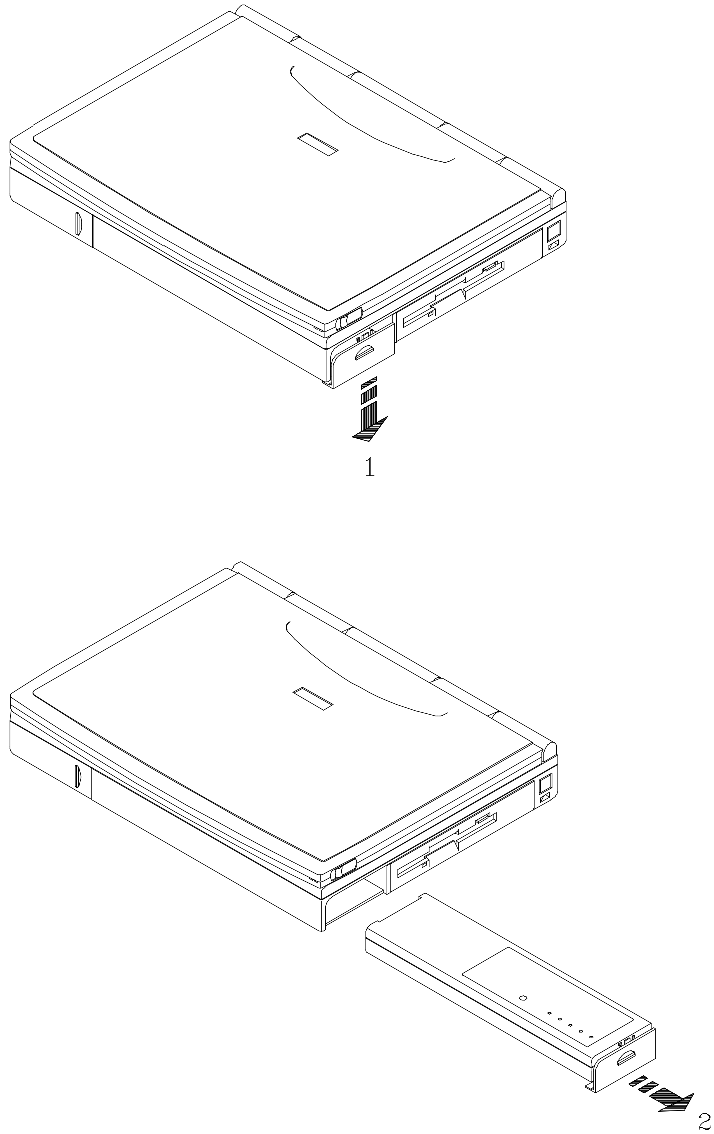


Figure 4-1 Removing the Battery

Removing FDD/CD Modules and Supplementary Battery

To remove the FDD module, CD module or supplementary battery:

1. Slide the locking button (1), located on the bottom of the system, in the direction shown (Figure 4-2).
2. Slide and hold the module release latch (2) in the direction shown.
3. While holding the module release latch in position, slide the module out of the system unit (3).

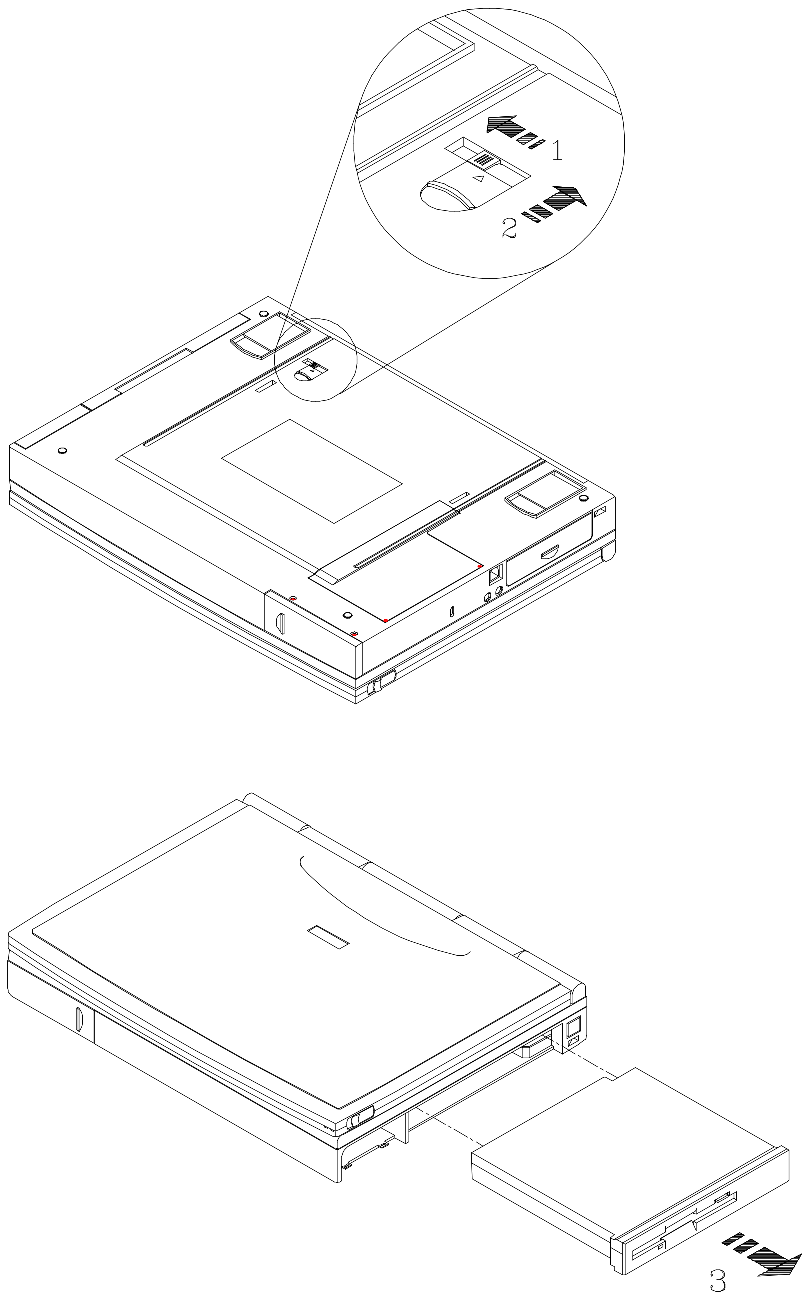


Figure 4-2 Removing the FDD Module, CD Module, Supplementary Battery

Removing the HDD Assembly

To remove the HDD:

1. Slide the HDD module plastic cover (1) in the direction shown (Figure 4-3).
2. Remove the two Philips head screws (2) located on the bottom of the notebook computer. They secure the HDD assembly in the system unit and prevent it from being damaged.
3. Gently remove the HDD from its housing, by pulling on its handle in the direction shown (3).

Installation Note

If the HDD assembly is slide installed upside down, the screws on the assembly may get caught on some plastic inside the system. To remove the drive slide a piece of paper (yellow sticky) between the unit and the plastic and slide out the HDD assembly.

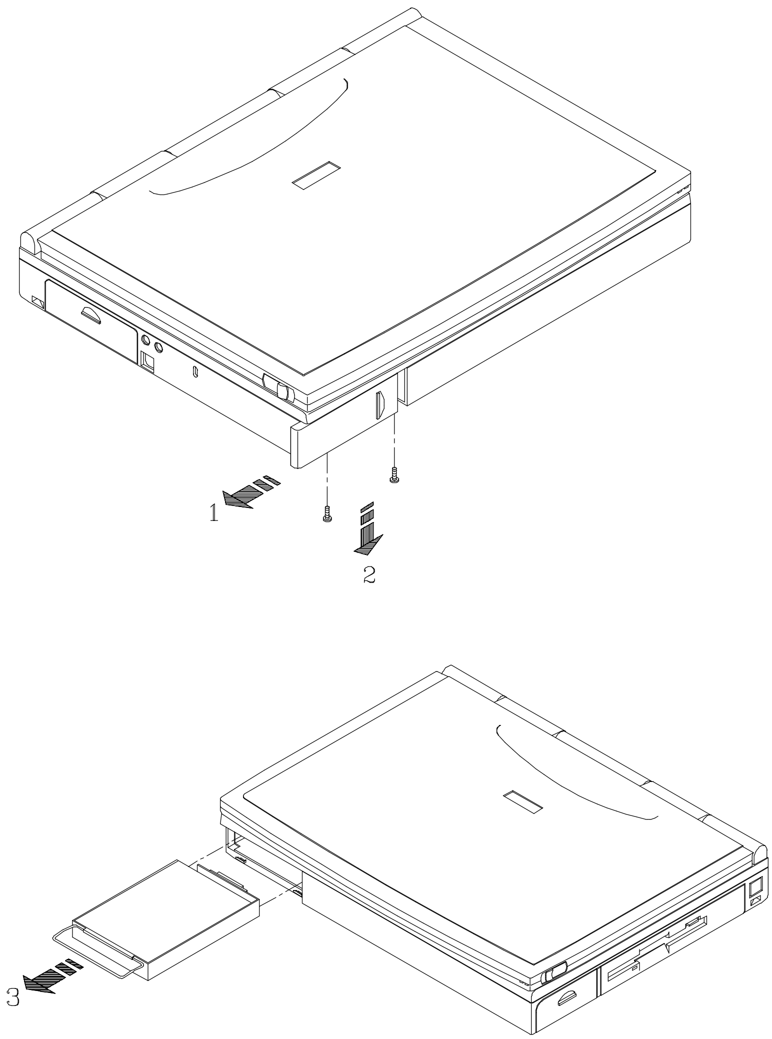


Figure 4-3 Removing HDD

Removing the Keyboard

To remove the keyboard:

1. Remove the keyboard screw caps by pulling them toward the front of the system and then up as shown (Figure 4-4).
2. Remove the two screws that hold the keyboard in place.
3. Lift the keyboard up and rotate it toward the LCD display. The keyboard cable is removed in step 5.

CAUTION

Be careful not to damage the keyboard cable when lifting up the keyboard.

4. Remove the heatsink (Figure 4-5).
   a) Remove the two screws that hold the heatsink in place.
   b) Carefully lift the heatsink up and remove it from the system sliding the keyboard cable through the slot in the heatsink.
5. Disconnect the keyboard cable.
   a) Release the cable latch by flipping it up. The latch is located across the back of the connector.
   b) Pull the cable out of the connector.

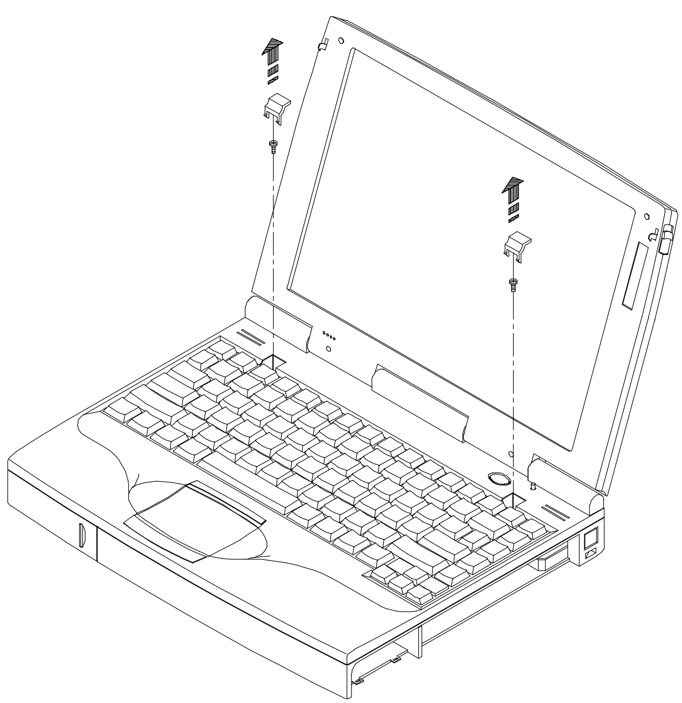


Figure 4-4 Removing Keyboard Screw Caps and Screws

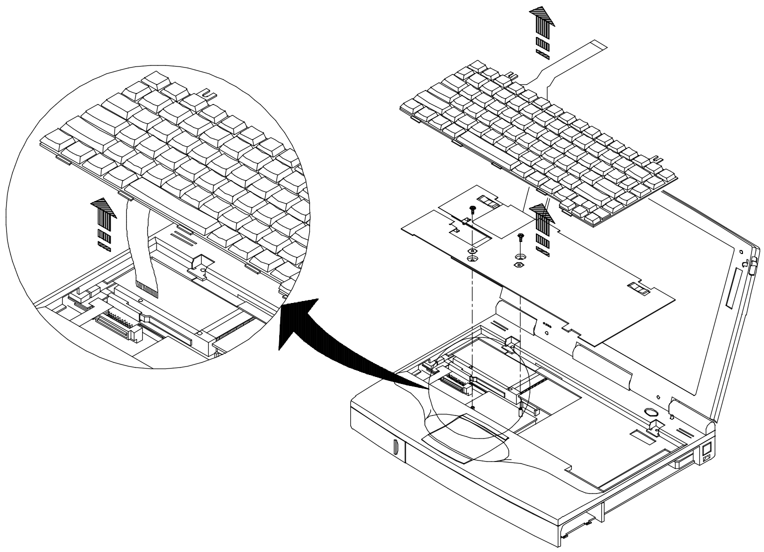


Figure 4-5 Removing Heatsink and Keyboard

Removing the CPU

The CPU daughter card is located under the heatsink. To remove the CPU daughter card:

1. Remove the keyboard and heatsink
2. Pull up on the CPU daughter card to remove if from the system (Figure 4-6).

Installation Note

When installing the CPU daughter card, align each of the connectors with the mating connector on the motherboard.

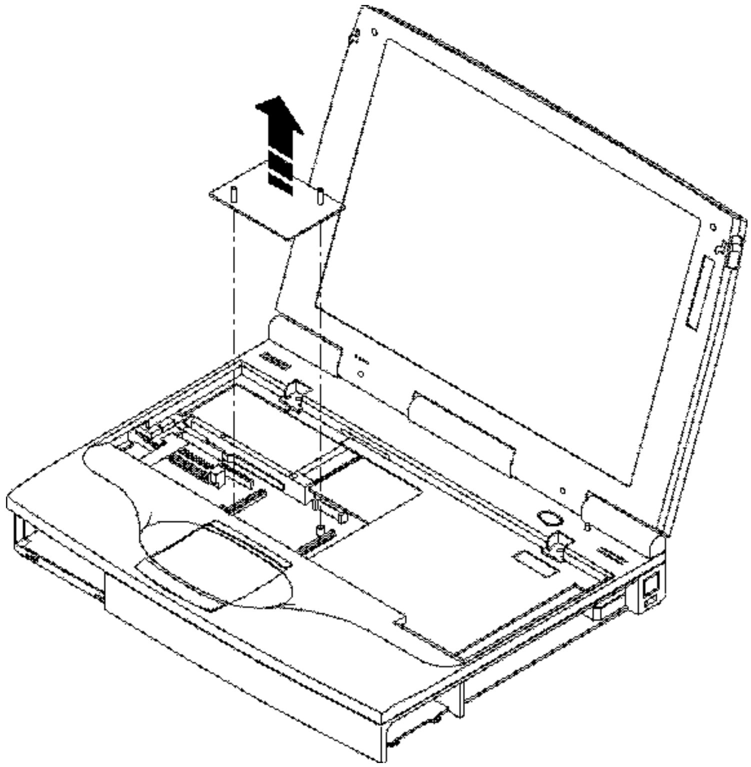


Figure 4-6 Removing the CPU Daughter Card

Removing the LCD Assembly and Keyboard Deck

To remove the LCD Assembly:

1. Remove the Battery
2. Remove the FDD/CD Module or Secondary Battery
3. Remove the HDD Assembly (recommended)
4. Remove the Keyboard and Heatsink
5. As a part of this procedure you will remove the Keyboard Deck. Before starting, close the LCD Assembly, turn the system unit over, and remove the screw located at the top of battery compartment (Figure 4-9).
6. Open the LCD assembly and remove the left and right end caps by sliding them ¼ inch toward the outside of the system unit and then up (Figure 4-7).

CAUTION

On systems with IR support, the IR receiver/transmitter assembly is located under the right end cap. Care should be taken when removing the right end cap.

7. Remove the screw located under the right end cap. On systems with an IR receiver/transmitter you will have to move the IR board to access the screw.
8. Remove the four hinge screws.

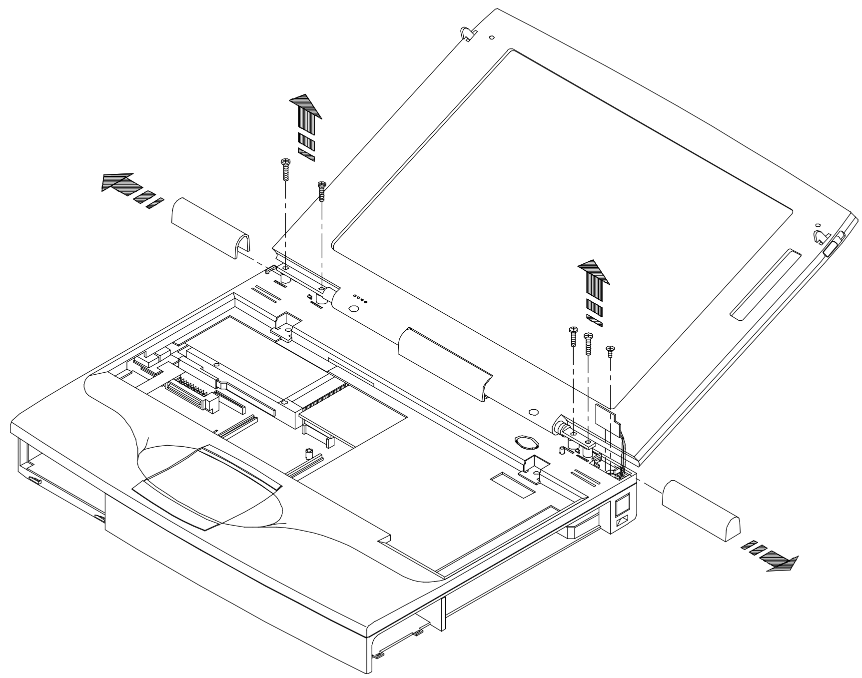


Figure 4-7 Removing LCD Assembly End Caps and Hinge Screws

9. Remove the center cap and the LCD Assembly from the system unit as follows:
   a) Press in at the base of the center cap to release the catches.
   b) Lift straight up on the LCD assembly and remove the Center cap as you remove the LCD assembly from the system unit. The LCD cable is still attached to the system unit.
   c) Lay the panel on the work surface behind the system unit being careful not to damage the cable.

Note

There are two catches on the back of the center cap that hook on to nibs on the Keyboard Deck. You may have to slide the cover forward to get these catches to release.

10. Remove the three screws across the back of the keyboard deck (Figure 4-8).
11. Remove the screw that secures the Keyboard Deck to the motherboard. This screw is located by the Touch Pad.
12. Disconnect the Touch Pad cable from the motherboard

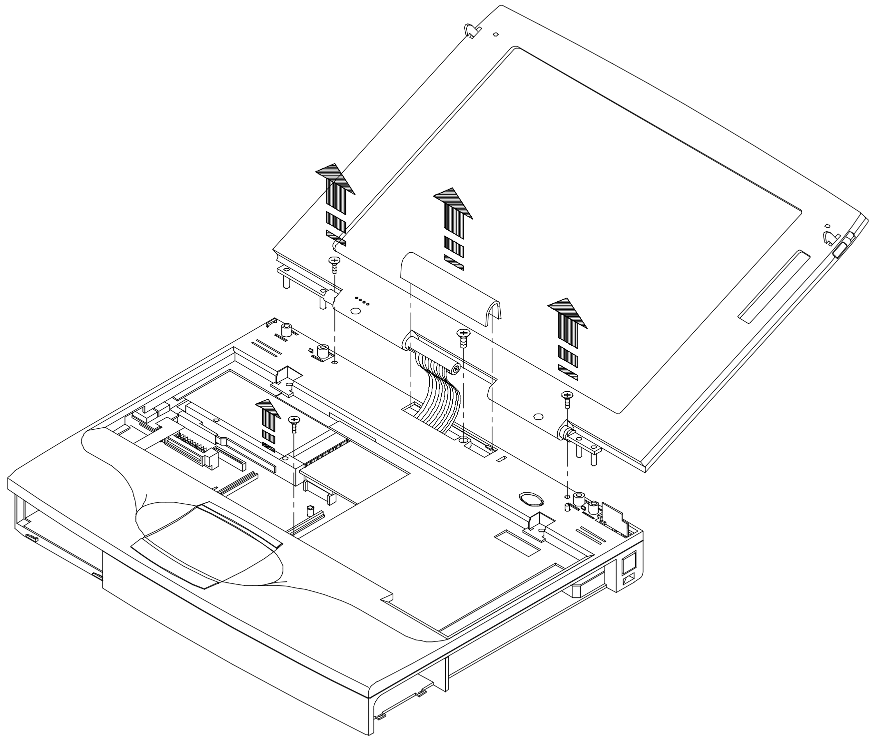


Figure 4-8 Removing the Keyboard Deck (Part 1)

13. Remove the Keyboard Deck by releasing the catches as shown (Figure 4-9) and lift the Keyboard deck off the system housing.
14. Disconnect the cable that goes to the System Suspend/Resume button assembly from the motherboard.
15. Lay the Keyboard deck on the LCD assembly.

CAUTION

Be careful no to damage the LCD cable assembly.

15. Remove the DC-to-DC Converter Board by pulling it straight up off its connectors. The DC-to-DC converter board is located to the right of the PCMCIA slots.
16. Remove the two screws that hold the LCD cable assembly in place. Note the location of the ground wire (Figure 4-10).
17. Disconnect the LCD cable assembly from the Motherboard by lifting up on the cable connector.

Note

The metal shield surrounding the cable connector is not a part of the LCD cable assembly.

Installation Notes

1. Be sure to reconnect the ground wire.
2. When installing the end caps removed in step 2, make sure the nibs inside the end caps slide into the appropriate catch on the Keyboard Deck.
3. The center cap has two catches that slide over nibs on the Keyboard Deck.

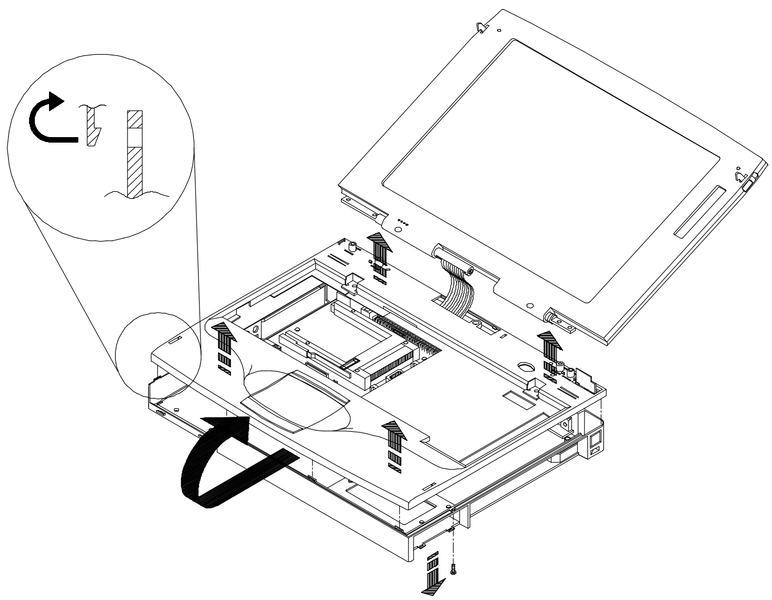


Figure 4-9 Removing the Keyboard Deck (Part 2)

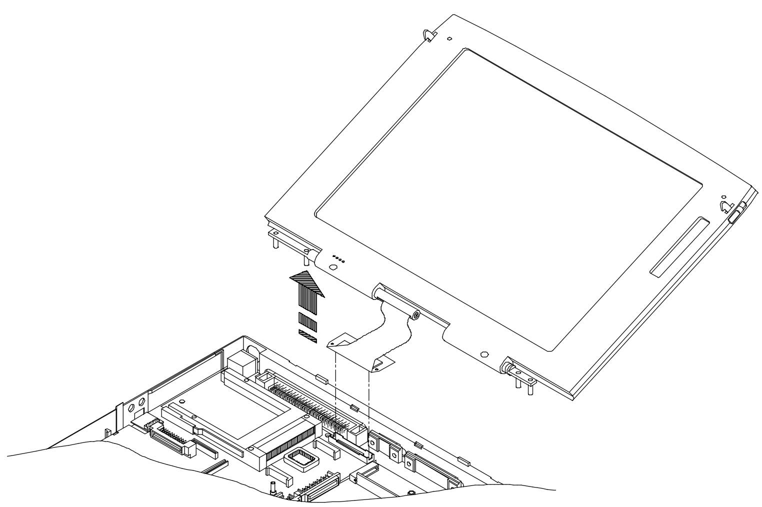


Figure 4-10 Disconnecting the LCD Assembly Cable

Removing the LCD Display Bezel

To remove the LCD display bezel:

1. Remove the two plugs and screws (Figure 4-11).
2. Pull one side of the bezel away from the center of the LCD assembly until the plastic latches are disengaged. Do this on each side of the bezel until you can remove the bezel.

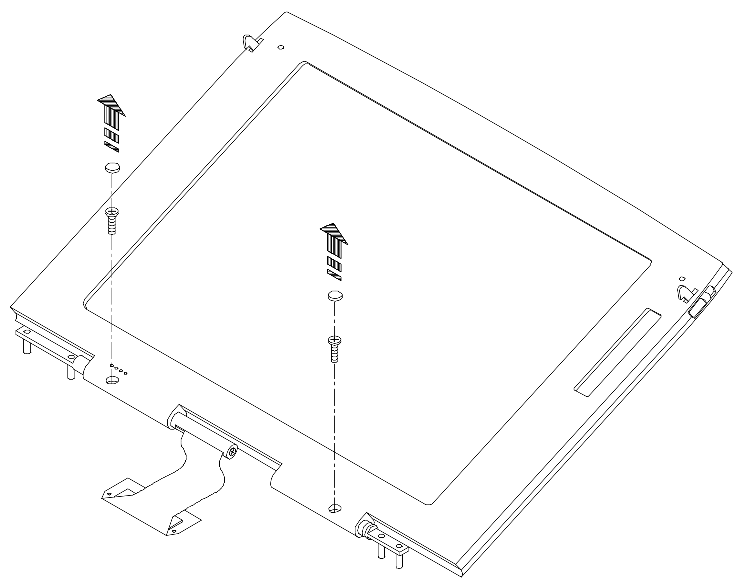


Figure 4-11 Removing the LCD Assembly Bezel

Removing the Status Display/Inverter Board

1. Remove the LCD Display Bezel.
2. Remove the two screws that hold the Status Display/Inverter Board in place (Figure 4-12).
3. Remove the cable that goes to the LCD Panel (A).
4. Remove the flat cable assembly (C).
   a) Release the cable lock by sliding the lock out of the connector.
   b) Remove the cable from the connector.

Remove LCD Display Panel

1. Remove the LCD Display Bezel
2. Remove the four screws that hold the LCD Panel in place (Figure 4-12).
3. Disconnect the cable that goes between the Status Display/Inverter Board and the LCD Panel. You may have to remove the Inverter Board.
4. Remove the flat cable assembly (B).
   a) Release the cable lock by sliding the lock out of the connector.

b) Remove the cable from the connector.

Important

LCD panels used in the Digital HiNote 500 series notebook computer are supplied by different manufacturer's. Each LCD panel uses a unique cable assembly. Do Not mix an LCD panel with a cable assembly from a different manufacturer.

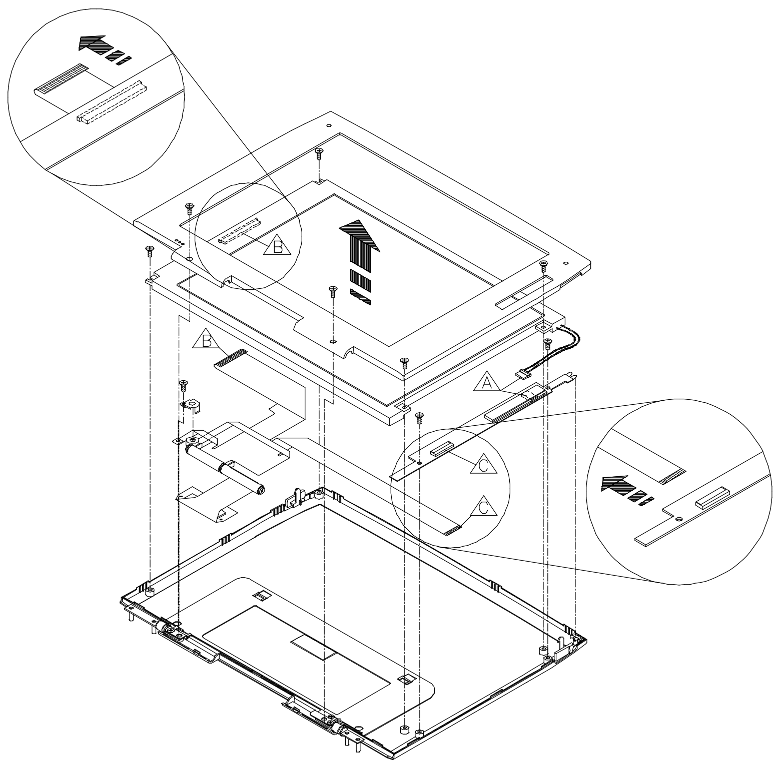


Figure 4-12 Removing the LCD Panel and Status/Inverter Board

Removing the Touch Pad

To remove the Touch Pad:

1. Remove the LCD Assembly and the Keyboard Deck.
2. Remove the screw that holds the Touch Pad in place.
3. Remove the Touch Pad by disengaging the two catches that hold it in place. You will have to work at carefully releasing these catches.

Removing the DC-to-DC Converter Board

To remove the DC-to-DC Converter board:

1. Remove the LCD Assembly and the Keyboard Deck.
2. Locate the DC-to-DC Converter board. It is by the PCMCIA card slots at the back of the system unit.
3. Remove the board by pulling it straight up off its connectors.

Removing the System BIOS Chip

The system BIOS chip is located under the DC-to-DC Converter board. To remove the system BIOS chip:

1. Remove the LCD Assembly and the Keyboard Deck.
2. Locate the DC-to-DC Converter board. It is by the PCMCIA card slots at the back of the system unit.
3. Remove the board by pulling it straight up off its connectors.
4. Using a chip puller, remove the BIOS chip.

CAUTION

When installing the BIOS chip, make sure pin 1 is properly aligned. Failure to do this will damage the chip, make the system not run, and possibly damage the system.

Removing the Audio Board

To remove the Audio Board:

1. Remove the LCD Assembly and the Keyboard Deck.
2. Locate the Audio board. It is located over the HDD bay at the front of the system unit.
3. Disconnect the cable that goes between the Audio board and the audio jacks.
    a) Release the cable lock by sliding the lock out of the connector.
    b) Remove the cable from the connector.

Note

The Audio jacks are soldered to the motherboard and cannot be removed.

4. Remove the board by pulling it straight up off its connectors.

Removing the Motherboard

1. Remove the Battery.
2. Remove the FDD/CD Module or Secondary Battery.
3. Remove the HDD Assembly.
4. Remove the Keyboard and CPU daughter card
5. Remove the LCD Assembly and the Keyboard Deck.
6. Remove the Audio Board.

Note

The Audio jacks are soldered to the motherboard and cannot be removed.

7. Remove the nuts that secure the I/O ports and Docking connector to the back of the system unit (Figure 4-13).
8. Remove the five screws that secure the motherboard to the system housing (Figure 4-14).
    – Three screws are located across the back of the motherboard.
    – One screw is located in the PCMCIA card slot.
    – One screw is located under the Audio card.
9. Remove the Motherboard from the system housing.

Note

1. For the Audio jacks to clear the side of the housing you will have to flex the side of the housing.
2. For the FDD and CD connectors to clear their shields you have to flex the shields out of the way.

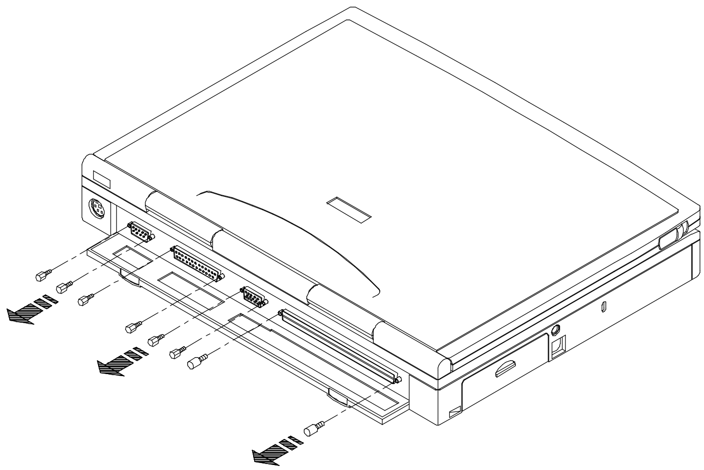


Figure 4-13 Removing I/O Panel Screws

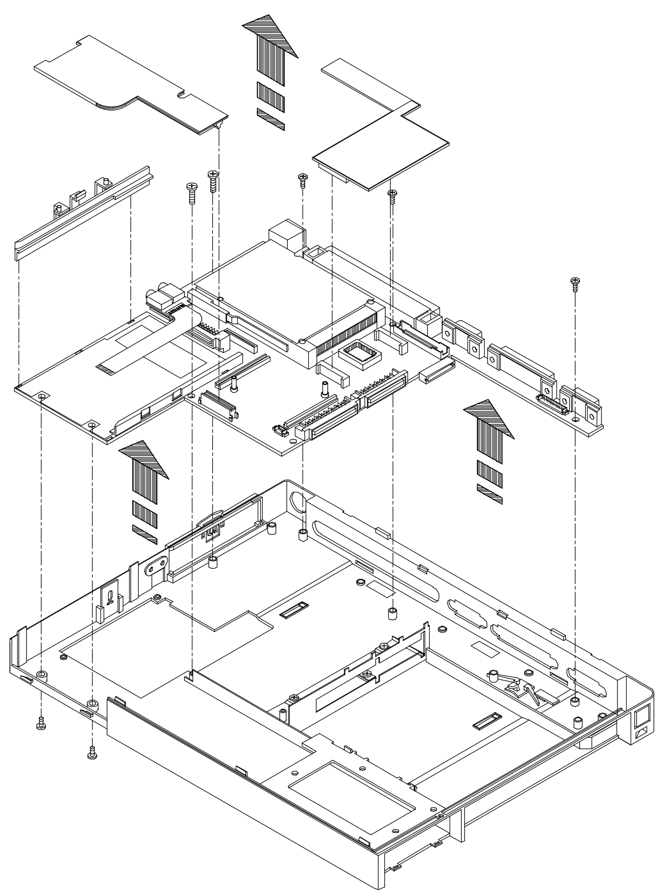


Figure 4-14 Removing the Motherboard

5

FRU List and Illustrated Parts Breakdown

This chapter provides a list of the Field Replaceable Units (FRUs) and a parts breakdown and parts list for the Digital HiNote VP 500 series notebook computer.

FRU List

The following sections provide a list of FRUs and their part numbers for the Digital HiNote VP 500 Series notebook computer.

LCD Display Assemblies, Panels, Boards, Housing

Digital FRU P/N	Compal P/N	Description
30-47904-01	2604071A01N	Assy, LCD Display 11.3", GS
30-47905-01	2604071A02M	Assy, LCD Display 11.3", GO
30-47967-01	2604211A01N	Assy, LCD Display 12.1", GM
30-48058-01		Assy, LCD Display 12.1", GL (LG)
30-47906-01	2604081A01T	Assy, LCD Display Bezel, 11.3", GS
30-47907-01	2604081A02R	Assy, LCD Display Bezel, 11.3", GO
30-47974-01	2604221A01T	Assy, LCD Display Bezel, 12.1", GM
30-47910-01	2604161A01M	Assy, Housing Display Cover 11.3", GS
30-47911-01	2604161A02L	Assy, Housing Display Cover 11.3", GO
30-47978-01	2604231A01M	Assy, Housing Display Cover 12.1", GM
30-48059-01		Assy, Housing Display Cover 12.1", GL (LG)
30-47914-01	2604101A01Q	Assy, Inverter Board, 11.3/12.1"
30-47908-01	2604091A01M	LCD Panel, 11.3" Sanyo (FE53)
30-47909-01	2604091A02L	LCD Panel, 11.3" Hosiden (1108)
30-47986-01	2604271A01L	LCD Panel, 12.1" IBM (3.3v ITSV50D)
30-48057-01		LCD Panel, 12.1" GL (LG)
30-47942-01	2604111A02T	Assy, Cable, LCD/INV/MIC, 11.3" GS
30-47943-01	2604111A03R	Assy, Cable, LCD/INV/MIC, 11.3" GO
30-47944-01	2604351A01Q	Assy, Cable, LCD/INV/MIC, 12.1" GM
30-48060-01		Assy, Cable, LCD/INV/MIC, 12.1" GL (LG)
30-47915-01	2604181A01M	Bezel Screw Cap

Motherboards, Daughterboards, Cache, IR, Power

Digital FRU P/N	Compal P/N	Description
30-47913-01	2603971A01N	Assy, DC/DC Converter
30-47916-01	2603901A01M	Assy, PWR SW Board/Cable
30-47920-01	2604001A02V	Assy, MLB 100MHz, NM2090 (-IR, -CPU)
30-47921-01	2604001A01M	Assy, MLB 120MHz, NM2090 (+IR, -CPU)
30-48021-01	2604241A01S	Assy, MLB 133MHz, NM2090 (+IR,+Res Wire+ L2 Cache, -CPU)
30-48022-01	2604291A01V	Assy, L2 Cache Board
30-48023-01	2604261A01R	Assy, IR Board
30-47924-01	2604061A01U	CPU Daughter Card 100MHz/Intel
30-47925-01	2604061A02S	CPU Daughter Card 120MHz/Intel
30-47926-01	2604251A01M	CPU Daughter Card 133MHz/Intel
30-47937-01	2603911A01R	Assy, Audio Board

Housings, Heatsinks, Miscellaneous Parts

Digital FRU P/N	Compal P/N	Description
30-47912-01	2604051A01P	Assy, I/O Door
30-47917-01	2603871A01V	Screw Cover, Keyboard Deck, 11.3/12.1"
30-47918-01	2603891A01U	Assy, Deck, Keyboard, 11.3/12.1"
30-47919-01	2604041A01V	Assy, Housing, Lower Main, 11.3/12.1"
30-47923-01	2603961A01U	Assy, Heatsink
30-47927-01	2603861A02N	Hinge, Cover set w/o IR lens
30-47928-01	2603861A01Q	Hinge, Cover set w/ IR lens
30-47929-01	2604141A01N	Hinge, Support Bracket
30-47930-01	2604151A01T	Assy, Hinge (L/R)
74-51658-01	2604011A01R	Assy, PCMCIA Door
74-51669-01	2604021A01L	Tilt Leg (L/R)
30-47931-01	2604031A01Q	Assy, Memory Door
30-47932-01	2604171A01S	Feet, Rubber
30-47938-01	2604131A01U	Assy, Hook Knob
30-47933-01	2603881A01P	Assy, Speaker L/R

Trackpad

Digital FRU P/N	Compal P/N	Description
30-47934-01	2603931A01Q	Assy, Trackpad
30-47935-01	2603941A01V	Assy, Trackpad Button Board

Batteries

Digital FRU P/N	Compal P/N	Description
30-47939-01	2604191A01R	Battery, RTC, HiNote VP5h
30-47940-01	2603771A01R	Assy, Advanced Metal Battery (NiMH), HiNote VP5h

Keyboards

Digital FRU P/N	Compal P/N	Description
30-47960-01	2603811A07M	Keyboard, US/American, HiNote VP5h
30-47961-01	2603811A06N	Keyboard, Japanese, HiNote VP5h
30-47962-01	2603811A05Q	Keyboard, UK/British, HiNote VP5h
30-47963-01	2603811A04S	Keyboard, German, HiNote VP5h
30-47964-01	2603811A03U	Keyboard, French, HiNote VP5h
30-47965-01	2603811A02L	Keyboard, Italian, HiNote VP5h
30-47966-01	2603811A01M	Keyboard, Spanish, HiNote VP5h
30-47968-01	2604201A05M	Keyboard, Belgian, HiNote VP5h
30-47969-01	2604201A04N	Keyboard, Danish, HiNote VP5h
30-47970-01	2604201A03Q	Keyboard, Norwegian, HiNote VP5h
30-47971-01	2604201A02S	Keyboard, Swedish/Finnish, HiNote VP5h
30-47972-01	2604201A01U	Keyboard, Portuguese, HiNote VP5h
30-47973-01	2604201A06U	Keyboard, Swiss, HiNote VP5h

Disk Drives

Digital FRU P/N	Compal P/N	Description
30-47936-01	2603741A01M	FDD Module 1.44MB (Mitsumi D353)
74-51657-01	2603781A01L	Door, HDD
30-47945-01	2603791A01Q	Assy, HDD Bracket/Cable (w/o HDD)
30-47946-01	2603921A01L	Holder, HDD (L)
30-47979-01[1]		HDD, 1.08Gb, 2.5" x .5" H (IBM - DSOA-21080) w/bracket assy
30-47947-01[1]	2604281A01Q	HDD, 1.08Gb, 2.5" x .5" H (Fujitsu - M2714TAM) w/bracket assy
30-47948-01[1]	2603801A01T	HDD, 1.44Gb, 2.5" x .5" H (IBM - DMCA-21440) w/bracket assy

1. Packaged with the HDD Bracket Assembly (30-47945-01) attached.

Option List

Digital Opt P/N	Digital FRU P/N	Compal P/N	Description
FR-PCP9E-BA	30-47949-01		Mini Dock w/o NIC, PR-1, HiNote VP5h
FR-PCP9E-BB	30-47950-01		Mini Dock w/ NIC, PR-2, HiNote VP5h
FR-PCP9H-BA	30-47922-01		Car Adapter, DC line cord, HiNote VP5h
FR-PCP9H-BE	30-47951-01		Battery Charger, DC line cord, HiNote VP5h
FR-PCP9H-BD	30-47953-01		OPT Li-Ion Battery, HiNote VP5h
FR-PCP9H-BW	30-47980-01	2603831A01M	Intl AC Adapter, w/o AC Cord, HiNote VP5h
	30-47980-01		Intl AC Adapter, w/o AC Cord, HiNote VP5h
	30-47941-01	2603821A01S	AC Adapter Module, Adapter Only, HiNote VP5h
FR-PCP9H-BB	30-47981-01		Intl AC Adapter, US/Amer, AC/DC Cord, HiNote VP5h
FR-PCP9H-BJ	30-47984-01		Intl AC Adapter, Japanese, AC/DC Cord, HiNote VP5h
FR-PCP9H-BH	30-47985-01		Intl AC Adapter, Australian/NZ, AC/DC Cord, HiNote VP5h
FR-PCP9R-BA	30-47954-01	2604301A01M	Removable 1.44Gb HDD Module, HiNote VP5h
FR-PCPXR-BA	30-47955-01		CD-ROM, 6X (Sanyo CD-N16-F), HiNote VP5h
FR-PCP9M-BA	30-47957-01	N/A	Memory Module, 8MB, HiNote VP5h (2/4Mb)
FR-PCP9M-BB	30-47958-01	N/A	Memory Module, 16MB, HiNote VP5h (2/8Mb)
FR-PCP9M-BC	30-47959-01	N/A	Memory Module, 32MB, HiNote VP5h (2/16Mb)
FR-PCP9H-BF	30-47982-01	N/A	Intl AC Adapter, Cent Euro, AC/DC Cord, HiNote VP5h
FR-PCP9H-BG	30-47983-01	N/A	Intl AC Adapter, UK/Brit, AC/DC Cord, HiNote VP5h

Digital Opt P/N	Digital FRU P/N	Compal P/N	Description
	30-46538-01	2601631A01U	HDD, 1.08Gb, 2.5" x .5" H (IBM - DSOA-21080)
	30-48047-01	N/A	HDD, 1.08Gb, 2.5" x .5" H (Fujitsu - M2714TAM)
	30-46539-01	N/A	HDD, 1.44Gb, 2.5" x .5" H (IBM - DMCA-21440)
	30-48024-01	N/A	Keyboard, Blank, HiNote VP5h
	17-04105-01	N/A	Power Cord, US/American
	17-04105-02	N/A	Power Cord, Central European
	17-04105-03	N/A	Power Cord, UK/British
	17-04105-06	N/A	Power Cord, Japanese
	17-04105-07	N/A	Power Cord, Australian/New Zealand

Illustrated Parts Breakdown

The following sections provide an illustrated parts breakdown of the Digital HiNote VP 500 series notebook computer. Each drawing has one or more tables with a parts description.

System IPBs for TS31GS/O/M

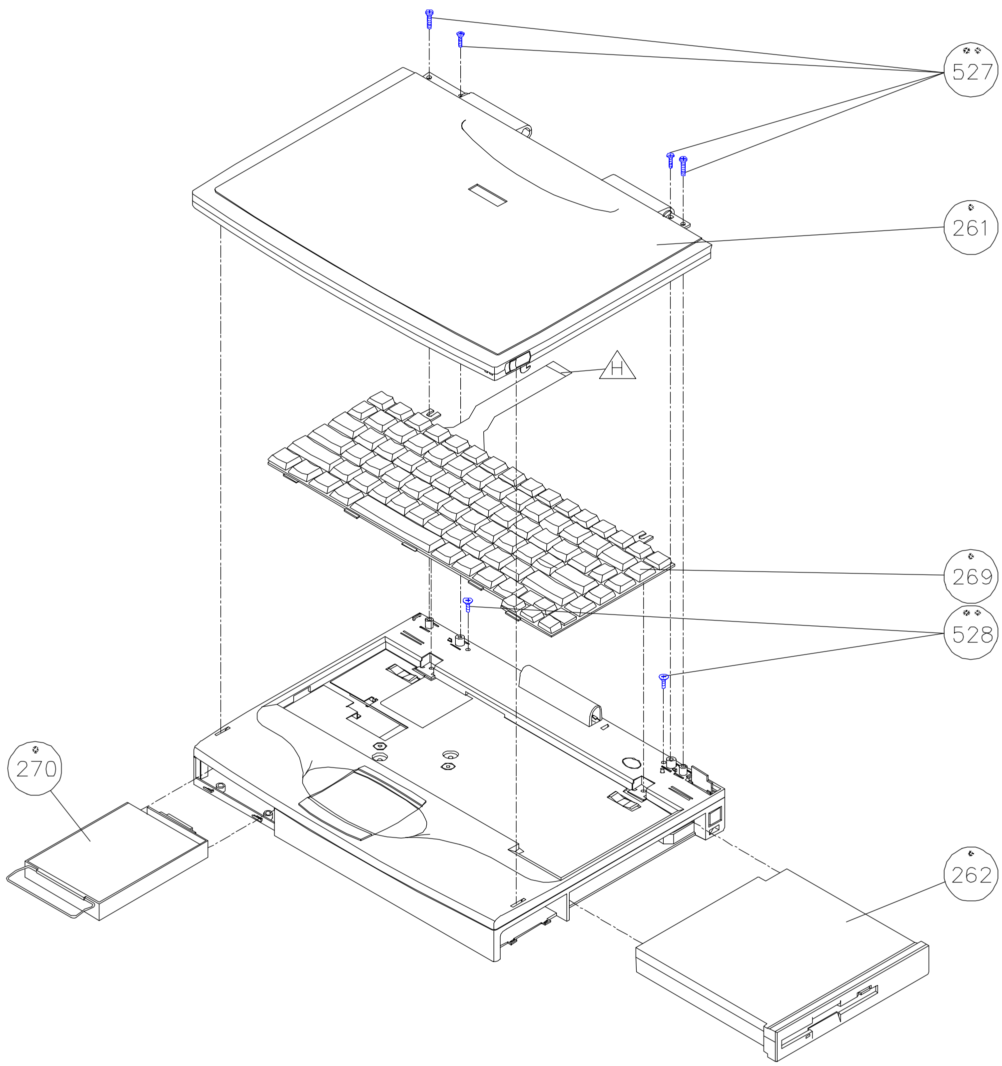


Figure 5-1 System Unit IPB (TS31GS/O/M)

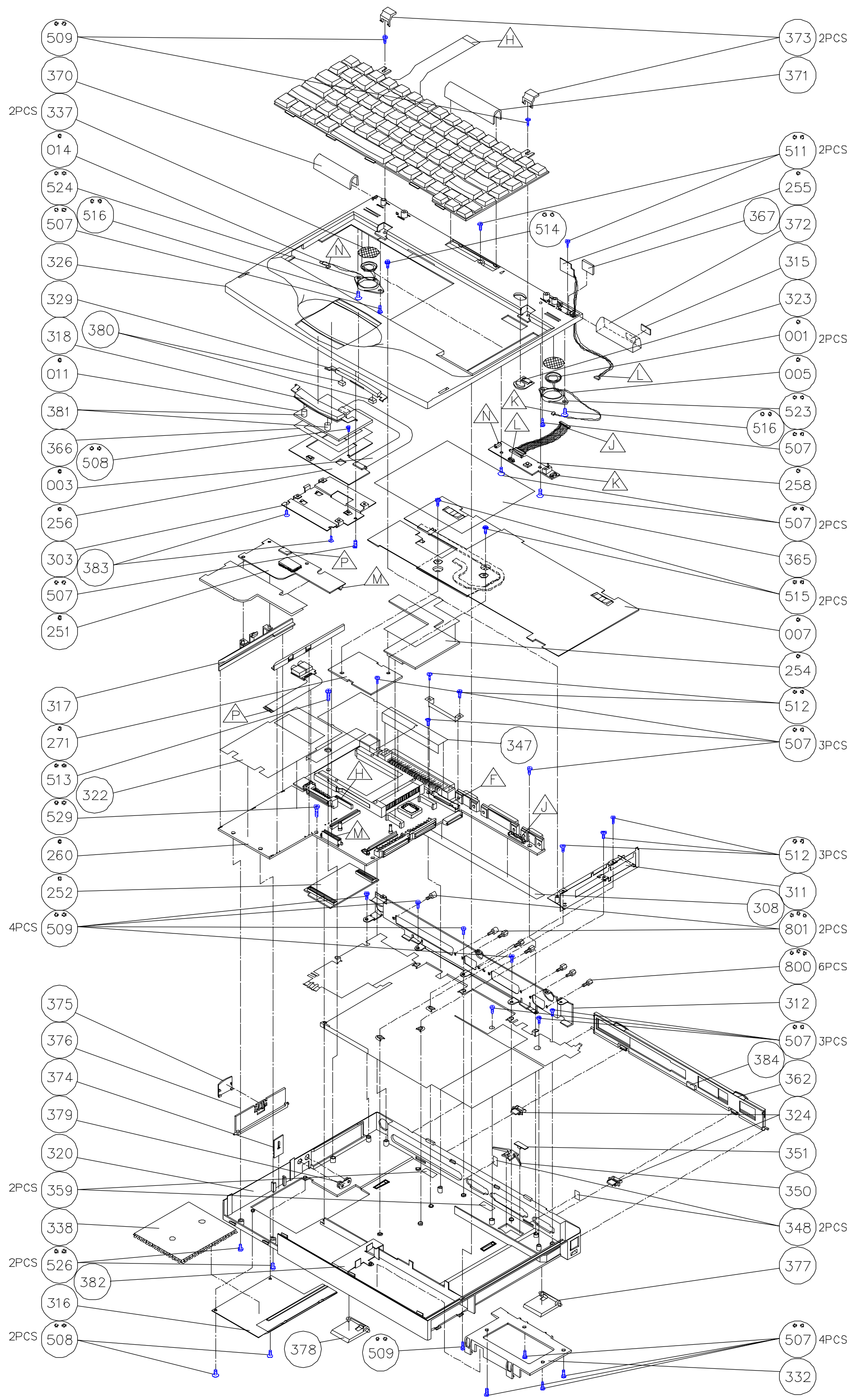


Figure 5-2 Detailed System IPB (TS31GS/O/M)

System IPB List for TS31GS (54CB010YYKx)

Refer to Figure 5-1 and Figure 5-2.

Callout	Compal Number	Description	54CB010YYKx U	N
001	CG0P4008003	SPEAKER 0.4W 8 OHM KR-23-8AB (23mm)	X	X
003	DA3S31GL415	FLEXIBLE PCB TS31G LF-194 REV1 T.PAD	X	X
005	DC020102507	HOUSING CONN. SET TS30G SPEAKER-MB RIGHT	X	X
007	EC30G0BJ101	CPU HEAT SINK ASS'Y 30G0BJ REV01	X	X
008	HGTS30P0604	80C51SL BIOS LABEL TS30P SYSTEMSOFT 51SL LABEL WITHOUT DRAWING	X	X
009	HGTS31A0016	SYSTEM BIOS LABEL TS31A PHOENIX NOTEBIOS LABEL WITHOUT DRAWING	X	X
011	PK090000308	TRACK PAD SYNAPTICS TM1002SU D-GRY	X	X
014	DC020109609	HOUSING CONN. SET TS31G SPK-L WIRESET	X	X
* 251	4351200011U	SMT ASSY, AUDIO BD. LS-144 TS31G	X	X
254	4530780001M	PCBA,DC-DC CONVERTER PQ-331 TS30G	X	X
255	4551800001Q	PCBA, I/R TEMIC LS-194 TS31G	-	X
256	4551790001M	PCBA, TRACK PAD LS-192 TS31G	X	X
258	4551780001T	PCBA, POWER SW BD. LS-193 TS31G	X	X
* 260	4610630001M	CPCBA, W/FIRMWARE LA141 TS31G (W/O,IR)	X	-
260	4610630002L	CPCBA, W/FIRMWARE LA141 TS31G	-	X
261	5103450001R	LCD ASSY TS31GS (WG013) (W/O AUDIO,IR)	X	-
261	5103450002P	LCD ASSY TS31GS (WG013)	-	X
262	5103460001L	FDD MODULE TS31G (WG013)	X	X
266	X661090001V	MECHANICAL ASSY TS31G (WG013) (W/O AUDIO,IR)	X	-
266	X661090002T	MECHANICAL ASSY TS31G (WG013)	-	X
267	X660790001M	SCREW SET REAL PANEL SCREW	X	X

Callout	Compal Number	Description	54CB010YYKx	
			U	N
269	24CW01	K/B SET 30G PART NO PLEASE REF NO.24CW01(103)		
270	510283	HDD BRACKET ASSY TS30G PART NO PLEASE REF NO.24CW01(255)		
271	435131	CPU MODULE TS30G PLEASE REF PART NO NO.24CW01(256)		

System IPB List for TS31GO (54CB110YYKM)

Refer to Figure 5-1 and Figure 5-2.

Callout	Compal Number	Description
001	CG0P4008003	SPEAKER0.4W 8 OHM KR-23-8AB (23mm)
003	DA3S31GL415	FLEXIBLE PCB TS31G LF-194 REV1 T.PAD
005	DC020102507	HOUSING CONN. SET TS30G SPEAKER-MB RIGHT CBL2
007	EC30G0BJ101	CPU HEAT SINK ASS'Y30G0BJ REV01
008	HGTS30P0604	80C51SL BIOS LABEL TS30P SYSTEMSOFT 51SL LABEL WITHOUT DRAWING
009	HGTS31A0016	SYSTEM BIOS LABEL TS31A PHOENIX NOTEBIOS LABEL WITHOUT DRAWING
011	PK090000308	TRACK PAD SYNAPTICS TM1002SU D-GRY
014	DC020109609	HOUSING CONN. SET TS31G SPK-L WIRESET
251	4351200011U	SMT ASSY, AUDIO BD. LS-144 TS31G
254	4530780001M	PCBA,DC-DC CONVERTER PQ-331 TS30G
255	4551800001Q	PCBA, I/R TEMIC LS-194 TS31G
256	4551790001M	PCBA, TRACK PAD LS-192 TS31G
258	4551780001T	PCBA, POWER SW BD. LS-193 TS31G
260	4610630002L	CPCBA, W/FIRMWARE LA191 TS31G
261	5103450011N	LCD ASSY TS31GO (WG013)
262	5103460001L	FDD MODULE TS31G (WG013)
266	X661090002T	MECHANICAL ASSY TS31G (WG013)
267	X660790001M	SCREW SET REAL PANEL SCREW
269	24CW01	K/B SET 30G PART NO PLEASE REF NO.24CW01(103)
270	510283	HDD BRACKET ASSY TS30G PART NO PLEASE REF NO.24CW01(255)
271	435131	CPU MODULE PART NO TS30G PLEASE REF NO.24CW01(256)

System IPB List for TS31GM (54CB410YYKN)

Refer to Figure 5-1 and Figure 5-2.

Callout	Compal Number	Description
001	CG0P4008003	SPEAKER 0.4W 8 OHM KR-23-8AB (23mm)
003	DA3S31GL415	FLEXIBLE PCB TS31G LF-194 REV1 T.PAD
005	DC020102507	HOUSING CONN. SET TS30G SPEAKER-MB RIGHT
007	EC30G0BJ101	CPU HEAT SINK ASS'Y 30G0BJ REV01
008	HGTS30P0604	80C51SL BIOS LABEL TS30P SYSTEMSOFT 51SL LABEL WITHOUT DRAWING
009	HGTS31A0016	SYSTEM BIOS LABEL TS31A PHOENIX NOTEBIOS LABEL WITHOUT DRAWING
011	PK090000308	TRACK PAD SYNAPTICS TM1002SU D-GRY
014	DC020109609	HOUSING CONN. SET TS31G SPK-L WIRESET
251	4351200011U	SMT ASSY, AUDIO BD LS-144 TS31G.
252	4351260001U	SMT ASSY, CACHE BD. LS-146 TS30G
254	4530780001M	PCBA,DC-DC CONVERTER PQ-331 TS30G
255	4551800001Q	PCBA, I/R TEMIC LS-194 TS31G
256	4551790001M	PCBA, TRACK PAD LS-192 TS31G
258	4551780001T	PCBA, POWER SW BD. LS-193 TS31G
260	4610630003U	CPCBA, W/FIRMWARE LA-191 TS31GM
261	5103450041Q	LCD ASSY TS31GM (WG013)
262	5103460001L	FDD MODULE TS31G (WG013)
266	X661090002T	MECHANICAL ASSY TS31G (WG013)
267	X660790001M	SCREW SET REAL PANEL SCREW
269	24CW01	K/B SET 30G PART NO PLEASE REF NO.24CW01(103)
270	510283	HDD BRACKET ASSY TS30G PART NO PLEASE REF NO.24CW01(255)
271	435131	CPU MODULE TS 30G PART NO PLEASE REF NO.24CW01(256)

Mechanical Parts List TS31G - All Units

Refer to Figure 5-1 and Figure 5-2.

Callout	Compal Number	Description
303	EC31G037001	TRACK PAD BRACKET31G037 REV01
308	EL30G08H102	I/O MYLAR30G08H REV01
311	EC31G04R007	RELEASE MODULE31G04R REV01
312	EC31G021008	I.O BRACKET 31G021 REV01
315	FC31G04B000	IR LENS31G04B REV01
316	FC31G03G002	RAM COVER 31G03G REV01 WG013(DECK269)
317	FC30G08E204	HDD HOLDER L 30G08E REV02
318	FB31G041000	TRACK PAD KNOB(D) 31G041 REV01 (WG015)(DECK271)
320	FA31G015001	LGOIC-LOWER31G015 REV01 (WG013)(DECK269)
322	EL30G0CW104	HDD PVC MYLAR30G0CW REV01
323	FB31G043002	POWER KONB31G043 REV01 (WG015)(DECK271)
324	FC31G04J009	I/O DOOR HINGE 31G04J REV01 WG013(DECK269)
326	FA31G014004	LGOIC-UPPER31G014 REV01 (WG014)(DECK270)
329	FB31G042006	TRACK PAD KNOB(H) 31G042 REV01 (WG015)(DECK271)
332	FC30G03V109	MPEG PLATE 30G03V REV01 (WG016)
337	FH30G0BQ108	NON-WOVEN (SPEAKER) 30G0BQ REV01
338	EE30G071108	RAM COVER EMI 30G071 REV01 (BK)
347	EL30G0C7108	DOCKING MYLAR 30G0C7 REV01
348	LC1031D0607	AUDIO GASKET 5X5X5
350	FB31G04L006	LOCK KNOB 31G04L REV01 WG013(DECK269)
351	FB31G04M002	MODULE LOCK KNOB 31G04M REV01 WG013(DECK269)
359	FH30G0C8105	I/O SPONGE 30G0C8 REV01
362	FC31G03P009	I/O DOOR ASS'Y 31G03P REV01 (WG013)(DEC269)
365	EL31G04Y005	BLACK MYLAR 31G04Y REV01
366	EL30G08N109	TRACK PAD MYLAR 30G08N REV01
367	FH31G04X002	SPONG (IR) 31G04X REV01
370	FC31G035009	HINGE COVER(L) 31G035 REV01 (WG013)(DECK269)
371	FC31G036005	HINGE CENTRAL CAP 31G036 REV01
372	FC31G03H006	HING-COVER(R)(W/OIR) 31G03H REV01 (DEC269)
372	FC31G034002	HINGE COVER(R) 31G034 REV01 (WG013)(DECK269)
373	FC31G044008	SCREW COVER 31G044 REV01 (WG014)(DECK270)
374	EC31G038008	LOCK BRACKET 31G038 REV01 (KENSINGITON)
375	FB31G047008	PCMCIA KNOB 31G047 REV01
376	FC31G033006	PCMCIA DOOR 31G033 REV01
377	FC31G048003	TILT LEGS(R) 31G048 REV01
378	FC31G049000	TILT LEGS(L) 31G049 REV01
379	FH31D04Q104	RUBBER (AUDIO) 31D04Q REV01
* 380	FH31G04U008	TRACKPAD SPONG 1 31G04U REV01
* 381	FH31G04T005	TRACKPAD SPONG 2 31G04T REV01
* 382	EC31G03Q005	SUPPORT-BRACKET 31G03Q REV01
* 383	MAB10025304	SCREW TPB-2.0X4FP-ZK

Callout	Compal Number	Description
* 384	FH31G04Z000	IO-DOOR RUBBER 31G04Z REV01
507	MAAA0001406	SCREW M3.0X0.5+5FP-MC
508	MAAA0002305	SCREW M2X0.4+3FP-ZK
509	MAAA0003409	SCREW M3X0.5+3FP-MC
* 511	MAAA0303208	SCREW M3X0.5+5FP-MC
512	MAA10023402	SCREW M2X0.4+3F-ZK
513	MAAA0003301	SCREW M3X0.5+5FP-ZK
514	MAA10000003	SCREW M2.0X0.4+6F-NI
515	MAAA0004413	SCREW M2X0.4+6P-MC
516	MAB10024006	TAPING SCREW TPB-2.0+5F-NI
523	FC30G0CZ101	SPEAKER PLATE-R 30G0CZ REV01
524	FC30G0D1100	SPEAKER PLATE-L 30G0D1 REV01
526	MAAA0006301	SCREW M2X0.4+10FP-ZK
527	MAA20006209	SCREW M3.0X0.5+15P-NI
528	MAA10026401	SCREW M2.6X0.45+6F-ZK
529	MACA0308409	SCREW M3X0.5+8FP-NI

System IPBs for TS31GA/I

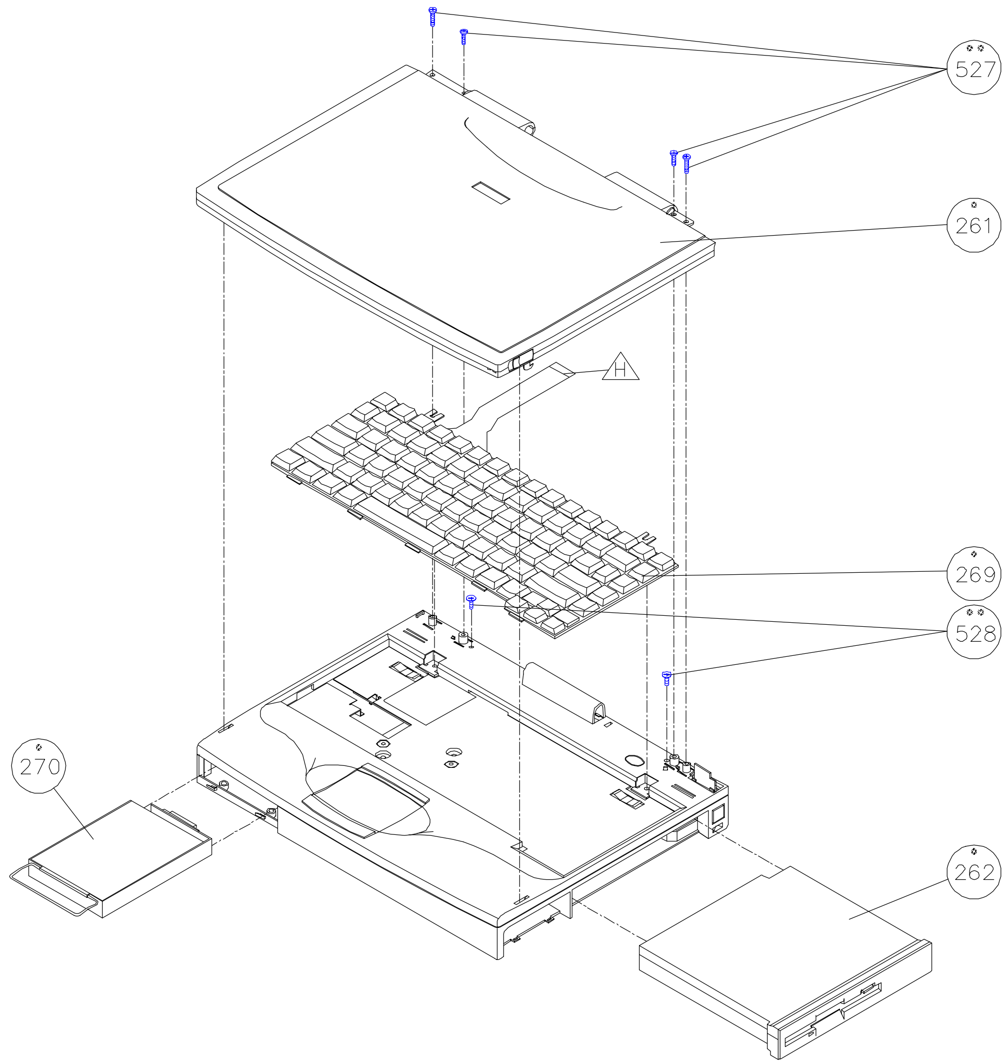


Figure 5-3 System Unit IPB (TS31GA/I)

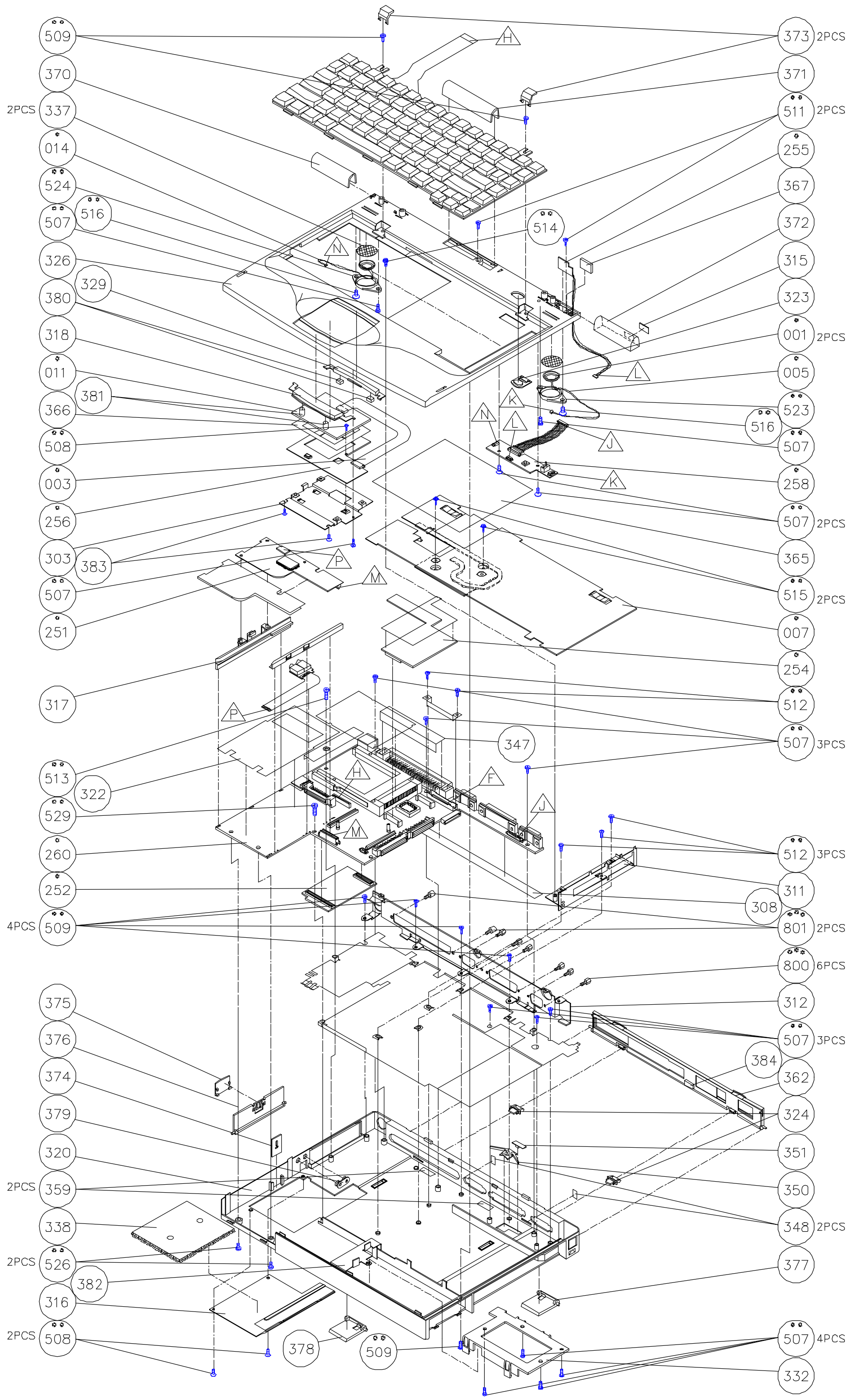


Figure 5-4 Detailed System IPB (TS31GA/I)

System IPB List for TS31GA/I

Refer to Figure 5-3 and Figure 5-4.

Callou t	Compal Number	Description	TS31 GA 54CB210YYK	TS31 GI 54CB310YYK
001	CG0P4008003	SPEAKER 0.4W 8 OHM KR-23-8AB (23mm)	X	X
* 003	DA3S31GL415	FLEXIBLE PCB TS31G LF-194 REV1 T.PAD	X	X
005	DC020102507	HOUSING CONN. SET TS30G SPEAKER-MB RIGHT	X	X
007	EC30G0BJ101	CPU HEAT SINK ASS'Y 30G0BJ REV01	X	X
008	HGTS30P0604	80C51SL BIOS LABEL TS30P SYSTEMSOFT 51SL LABEL WITHOUT DRAWING	X	X
009	HGTS31A0016	SYSTEM BIOS LABEL TS31A PHOENIX NOTEBIOS LABEL WITHOUT DRAWING	X	X
011	PK090000308	TRACK PAD SYNAPTICS TM1002SU D-GRY	X	X
014	DC020109609	HOUSING CONN. SET TS31G SPK-L WIRESET	X	X
* 251	4551810001V	PCBA, AUDIO BOARD LS-203 TS31G2	X	X
252	4351260001U	SMT ASSY, CACHE BD. LS-146 TS30G	X	X
254	4530980001U	PCBA,DC-DC CONVERTER PQ-33C TS31G2	X	X
255	4551820001P	PCBA, I/R TEMIC LS-202 TS31G2	X	X
256	4551790001M	PCBA, TRACK PAD LS-192 TS31G	X	X
258	4551830001U	PCBA, POWER SW BD. LS-201 TS31G2	X	X
* 260	4610640001S	CPCBA, W/FIRMWARE LA201 TS31G2	X	X
261	5103450021L	LCD ASSY TS31GA (WG013)	X	-
261	5103450031T	LCD ASSY TS31GI (WG013)	-	X
262	5103460001L	FDD MODULE TS31G (WG013)	X	X
266	X661090002T	MECHANICAL ASSY TS31G (WG013)	X	X
267	X660790001M	SCREW SET REAL PANEL SCREW	X	X
269	24CB21	K/B SET 30G PART NO PLEASE REF NO.24CB21(103)		
270	510283	HDD BRACKET ASSY TS30G PART NO PLEASE REF NO.24CB21(255)		

Mechanical Parts List TS31G - All Units

Refer to Figure 5-3 and Figure 5-4.

Callout	Compal Number	Description
303	EC31G037001	TRACK PAD BRACKET31G037 REV01
308	EL30G08H102	I/O MYLAR30G08H REV01
311	EC31G04R007	RELEASE MODULE31G04R REV01
312	EC31G021008	I.O BRACKET 31G021 REV01
315	FC31G04B000	IR LENS31G04B REV01
316	FC31G03G002	RAM COVER 31G03G REV01 WG013(DECK269)
317	FC30G08E204	HDD HOLDER L 30G08E REV02
318	FB31G041000	TRACK PAD KNOB(D) 31G041 REV01 (WG015)(DECK271)
320	FA31G015001	LGOIC-LOWER31G015 REV01 (WG013)(DECK269)
322	EL30G0CW104	HDD PVC MYLAR30G0CW REV01
323	FB31G043002	POWER KONB31G043 REV01 (WG015)(DECK271)
324	FC31G04J009	I/O DOOR HINGE 31G04J REV01 WG013(DECK269)
326	FA31G014004	LGOIC-UPPER31G014 REV01 (WG014)(DECK270)
329	FB31G042006	TRACK PAD KNOB(H) 31G042 REV01 (WG015)(DECK271)
332	FC30G03V109	MPEG PLATE 30G03V REV01 (WG016)
337	FH30G0BQ108	NON-WOVEN (SPEAKER) 30G0BQ REV01
338	EE30G071108	RAM COVER EMI 30G071 REV01 (BK)
347	EL30G0C7108	DOCKING MYLAR 30G0C7 REV01
348	LC1031D0607	AUDIO GASKET 5X5X5
350	FB31G04L006	LOCK KNOB 31G04L REV01 WG013(DECK269)
351	FB31G04M002	MODULE LOCK KNOB 31G04M REV01 WG013(DECK269)
359	FH30G0C8105	I/O SPONGE 30G0C8 REV01
362	FC31G03P009	I/O DOOR ASS'Y 31G03P REV01 (WG013)(DEC269)
365	EL31G04Y005	BLACK MYLAR 31G04Y REV01
366	EL30G08N109	TRACK PAD MYLAR 30G08N REV01
367	FH31G04X002	SPONG (IR) 31G04X REV01
370	FC31G035009	HINGE COVER(L) 31G035 REV01 (WG013)(DECK269)
371	FC31G036005	HINGE CENTRAL CAP 31G036 REV01
372	FC31G03H006	HING-COVER(R)(W/OIR) 31G03H REV01 (DEC269)
372	FC31G034002	HINGE COVER(R) 31G034 REV01 (WG013)(DECK269)
373	FC31G044008	SCREW COVER 31G044 REV01 (WG014)(DECK270)
374	EC31G038008	LOCK BRACKET 31G038 REV01 (KENSINGITON)
375	FB31G047008	PCMCIA KNOB 31G047 REV01
376	FC31G033006	PCMCIA DOOR 31G033 REV01
377	FC31G048003	TILT LEGS(R) 31G048 REV01
378	FC31G049000	TILT LEGS(L) 31G049 REV01
379	FH31D04Q104	RUBBER (AUDIO) 31D04Q REV01
* 380	FH31G04U008	TRACKPAD SPONG 1 31G04U REV01
* 381	FH31G04T005	TRACKPAD SPONG 2 31G04T REV01
* 382	EC31G03Q005	SUPPORT-BRACKET 31G03Q REV01
* 383	MAB10025304	SCREW TPB-2.0X4FP-ZK

Callout	Compal Number	Description
* 384	FH31G04Z000	IO-DOOR RUBBER 31G04Z REV01
507	MAAA0001406	SCREW M3.0X0.5+5FP-MC
508	MAAA0002305	SCREW M2X0.4+3FP-ZK
509	MAAA0003409	SCREW M3X0.5+3FP-MC
* 511	MAAA0303208	SCREW M3X0.5+5FP-MC
512	MAA10023402	SCREW M2X0.4+3F-ZK
513	MAAA0003301	SCREW M3X0.5+5FP-ZK
514	MAA10000003	SCREW M2.0X0.4+6F-NI
515	MAAA0004413	SCREW M2X0.4+6P-MC
516	MAB10024006	TAPING SCREW TPB-2.0+5F-NI
523	FC30G0CZ101	SPEAKER PLATE-R 30G0CZ REV01
524	FC30G0D1100	SPEAKER PLATE-L 30G0D1 REV01
526	MAAA0006301	SCREW M2X0.4+10FP-ZK
527	MAA20006209	SCREW M3.0X0.5+15P-NI
528	MAA10026401	SCREW M2.6X0.45+6F-ZK
529	MACA0308409	SCREW M3X0.5+8FP-NI

LCD Assembly IPB for TS31GS/O

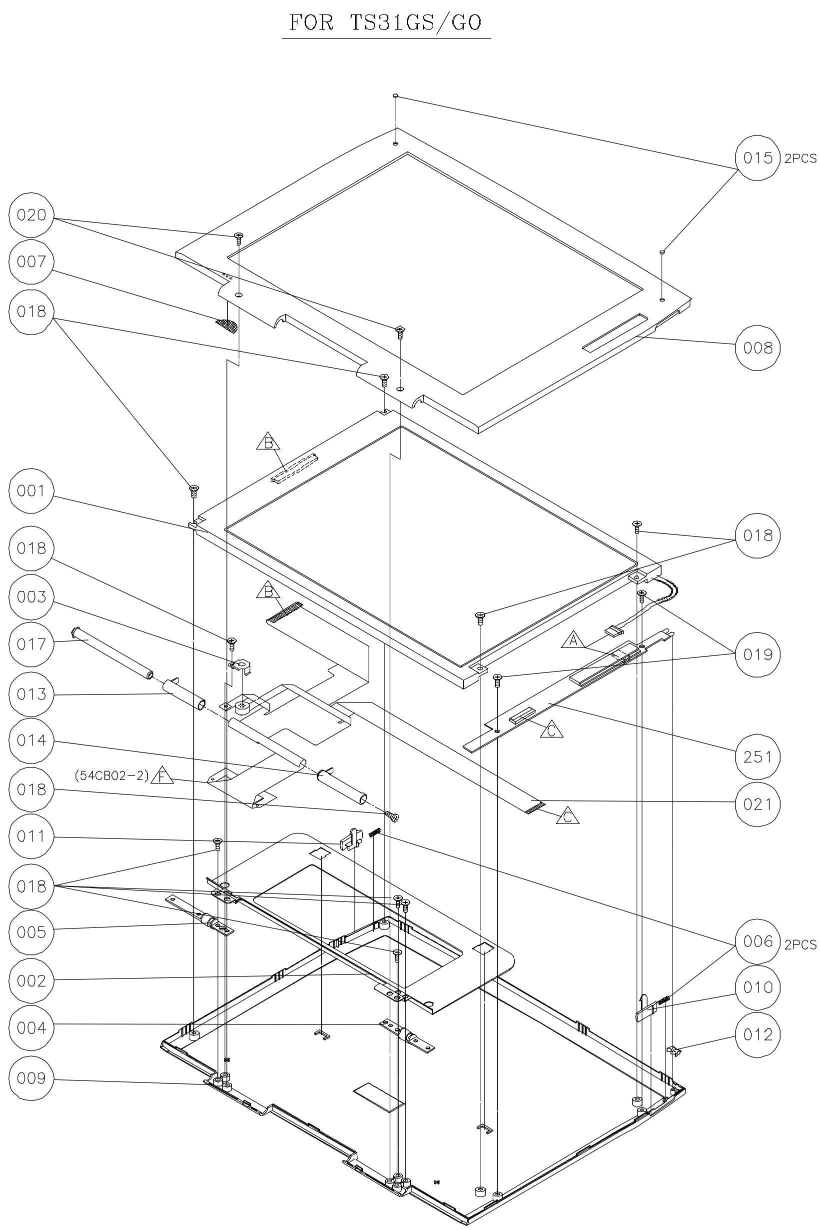


Figure 5-5 LCD Assembly IPB for GS/GO Panel

LCD Assembly Listing for TS31GS/O

Refer to Figure 5-5.

Call Out	Compal Number	Description	5103450XXX 001	002	011	041
001	AC600003008	LCD MODULE LM-FE53-22NTS (SANYO) PANEL	X	X	-	-
* 001	AC600004403	LCD MODULE HLD1108 11.3" (HOSIDEN)	-	-	X	-
001	AC600003806	LCD MODULE ITSV50D 12.1" (IBM)	-	-	-	X
002	EC31G039101	HINGE SUPPORT 31G039 REV01 (BRACKET)	X	X	X	X
003	EC31G04C003	MIC HOLDER 31G04C REV01	-	X	X	X
004	EC31G04F004	HINGE(R) 31G04E REV01	X	X	X	X
005	EC31G04E001	HINGE(L) 31G04F REV01	X	X	X	X
006	EF31G04Q008	SPRING 31G04Q REV01	X	X	X	X
007	EFTS387E007	HIMELON (SPEAKER) TS387E REV01	X	X	X	X
* 008	FA31G013008	LCD-BEZEL(11.3") 31G013 REV01 (WG013)(DECK269)	X	X	X	-
008	FA31G012001	LCD-BEZEL(12.1") 31G012 REV01	-	-	-	X
* 009	FA31G011005	LCD-COVER 31G011 REV01 (WG013)(DECK269)	X	X	-	-
* 009	FA31G011404	LCD-COVER 31G011 REV01 (FUJITSA 11.3)	-	-	X	-
009	FA31G011307	LCD-COVER 31G011 REV01 (IBM 12.1)	-	-	-	X
010	FB31G045005	HOOK KNOB(R) 31G045 REV01 (WG013)(DECK269)	X	X	X	X
011	FB31G046001	HOOK KNOB(L) 31G046 REV01 (WG013)(DECK269)	X	X	X	X
012	FC31G04A002	LED LENS 31G04A REV01	X	X	XX	X
013	FC31G04G008	FPC HOLDER(L) 31G04G REV01	X	X	X	X
014	FC31G04H001	FPC HOLDER (R) 31G04H REV01	X	X	X	X
015	FH31D049103	RUBBER PAD 31D049 REV01	X	X	X	X
017	LC31G04I005	FPC HOLDER SCREW 31G04I REV01 (NUT)	X	X	X	X
018	MAAA0001406	SCREW M3.0X0.5+5FP-MC	X	X	X	X

Call Out	Compal Number	Description	5103450XXX			
			001	002	011	041
* 019	MACA0000404	SCREW M3X0.5+5FP-MC	X	X	X	X
* 020	MAAA0005304	SCREW M3X0.5+8FP-MC(NL)	X	X	X	X
* 021	DA3S31GL024	FLEXIBLE PCB TS31G LF-191 REV2 FE53	X	X	-	-
* 021	DA3S31GL211	FLEXIBLE PCB TS31G LF-193 REV1 TFT 11.3	-	-	X	-
* 021	DA3S31GL318	FLEXIBLE PCB TS31G LF-193 REV1 TFT 12.1	-	-	-	X
251	4530950001Q	PCBA, INVERTER PQ-33B TS31G	X	X	X	X

LCD Assembly IPB for TS31GA/I

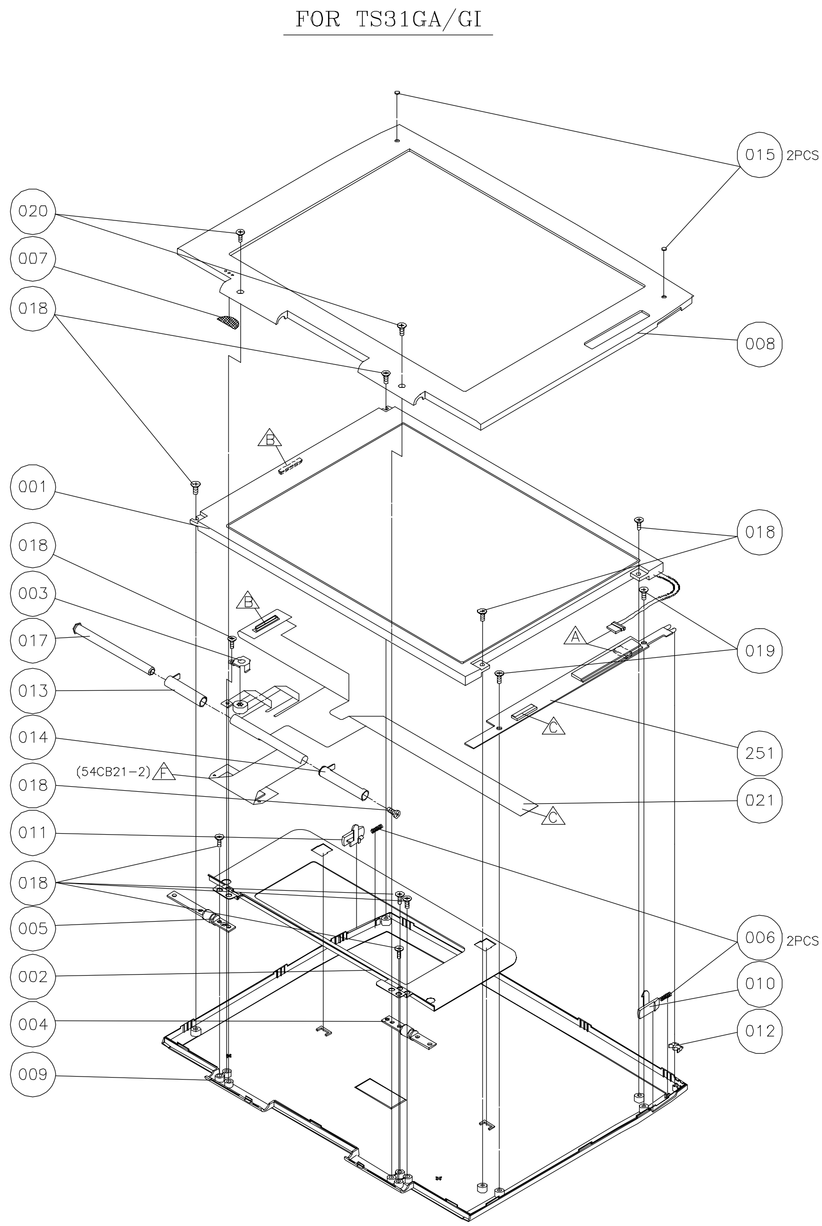


Figure 5-6 LCD Assembly IPB for GA/GI Panel

LCD Assembly Listing for TS31GA/I

Refer to Figure 5-6.

Callout	Compal Number	Description	5103450XXX 021	5103450XXX 031
001	AC600004306	LCD MODULE LM-JA53-22NTK (SANYO)	X	-
001	AC600003806	LCD MODULE ITSV50D 12.1" (IBM)	-	X
002	EC31G039101	HINGE SUPPORT 31G039 REV01 (BRACKET)	X	X
003	EC31G04C003	MIC HOLDER 31G04C REV01	X	X
004	EC31G04F004	HINGE(R) 31G04E REV01	X	X
005	EC31G04E001	HINGE(L) 31G04F REV01	X	X
006	EF31G04Q008	SPRING 31G04Q REV01	X	X
007	EFTS387E007	HIMELON (SPEAKER) TS387E REV01	X	X
* 008	FA31G012001	LCD-BEZEL(12.1") 31G012 REV01	X	X
* 009	FA31G011005	LCD-COVER 31G011 REV01 (WG013)(DECK269)	X	X
010	FB31G045005	HOOK KNOB(R) 31G045 REV01 (WG013)(DECK269)	X	X
011	FB31G046001	HOOK KNOB(L) 31G046 REV01 (WG013)(DECK269)	X	X
012	FC31G04A002	LED LENS 31G04A REV01	X	X
013	FC31G04G008	FPC HOLDER(L) 31G04G REV01	X	X
014	FC31G04H001	FPC HOLDER (R) 31G04H REV01	X	X
015	FH31D049103	RUBBER PAD 31D049 REV01	X	X
017	LC31G04I005	FPC HOLDER SCREW 31G04I REV01 (NUT)	X	X
* 018	MAAA0001406	SCREW M3.0X0.5+5FP-MC	X	X
* 019	MACA0000404	SCREW M3X0.5+5FP-MC	X	X
* 020	MAAA0005304	SCREW M3X0.5+8FP-MC(NL)	X	X
* 021	DA331G2L107	FLEXIBLE PCB TS31G2 LF-202 REV0 SA JA53	X	-
* 021	DA3S31GL318	FLEXIBLE PCB TS31G LF-193 REV1 TFT 12.1	-	X
251	4530950001Q	PCBA, INVERTER PQ-33B TS31G	X	X

A
Specifications

Base Unit

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
CPU	P54 CSLM Pentium (100 MHz to 133 MHz supported	P54 CSLM Pentium (100 MHz to 133 MHz supported	P54 CSLM Pentium (100 MHz to 133 MHz supported	P54 CSLM Pentium (100 MHz to 133 MHz supported
CPU Speed	100 MHz	120 MHz	120 MHz	133 MHz
Cache L1	16KB Internal	16KB Internal	16KB Internal	16KB Internal
Cache L2	N/A	N/A	N/A	256KB
Architecture (Mobile Triton)	PCI	PCI	PCI	PCI
Standard RAM	8MB (EDO)	8MB (EDO)	8MB (EDO)	8MB (EDO)
Maximum RAM	40MB	40MB	40MB	40MB
RAM Upgrade	DIMM	DIMM	DIMM	DIMM
Diskette Drive	Removable 3.5"	Removable 3.5"	Removable 3.5"	Removable 3.5"
Supports Japanese Mode	Yes	Yes	Yes	Yes
HDD Size	2.5" 12.5mm height	2.5" 12.5mm height	2.5" 12.5mm height	2.5" 12.5mm height
HDD (user upgradable)	1.08GB	1.08GB	1.08GB	1.44GB
CD-ROM	Optional	6X	6X	6X
Integrated Pointing Device	Trackpad	Trackpad	Trackpad	Trackpad

Ports

	Model			
Port	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
Keyboard/Mouse Port	PS/2	PS/2	PS/2	PS/2
External Video Interface	SVGA	SVGA	SVGA	SVGA
External Video, Maximum Resolution	1024x768 256 Colors	1024x768 256 Colors	1024x768 256 Colors	1024x768 256 Colors
External Video, Maximum Refresh	85 Hz	85 Hz	85 Hz	85 Hz
Serial Port	Yes	Yes	Yes	Yes
Parallel Port	ECP/EPP	ECP/EPP	ECP/EPP	ECP/EPP
Serial IR link	N/A	Yes	Yes	Yes
Microphone Jack	Yes	Yes	Yes	Yes

Audio

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
Audio	16-bit Stereo	16-bit Stereo	16-bit Stereo	16-bit Stereo
Audio Controller	ESS 1688	ESS 1688	ESS 1688	ESS 1688
Audio Compatibility	WSS and SoundBlaster with OPL3 Compatibility	WSS and SoundBlaster with OPL3 Compatibility	WSS and SoundBlaster with OPL3 Compatibility	WSS and SoundBlaster with OPL3 Compatibility
Audio Volume Control	Hot Key	Hot Key	Hot Key	Hot Key
Built-in Microphone	Yes	Yes	Yes	Yes
Built-in Stereo Speakers	Yes	Yes	Yes	Yes

LCD Display

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
Display Type	11.3" SVGA DSTN Color	11.3" SVGA DSTN Color	11.3" SVGA TFT Color	11.3" SVGA TFT Color
Video Processor	NM2090	NM2090	NM2090	NM2090
Video Accelerator	BitBLT Hardware	BitBLT Hardware	BitBLT Hardware	BitBLT Hardware
Video RAM	Pseudo 1.1MB	Pseudo 1.1MB	Pseudo 1.1MB	Pseudo 1.1MB
Graphic Resolution	800x600	800x600	800x600	800x600
Colors	256	256	64,000	64,000

PCMCIA (PCI)

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
PCMCIA Type II/III Support	2 type I or 1 Type II	2 type I or 1 Type II	2 type I or 1 Type II	2 type I or 1 Type II
Revision Support	2.1	2.1	2.1	2.1
Controller	6730	6730	6730	6730

BIOS Support

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
Supplier	Phoenix 4.04	Phoenix 4.04	Phoenix 4.04	Phoenix 4.04
PC '95 Compliant	Yes	Yes	Yes	Yes
Flash ROM Size	256KB	256KB	256KB	256KB
Suspend to RAM	Yes	Yes	Yes	Yes
Suspend to Disk	Yes	Yes	Yes	Yes
Password	On boot, On resume	On boot, On resume	On boot, On resume	On boot, On resume
Power Management	APM 1.1	APM 1.1	APM 1.1	APM 1.1

Battery, Status Display, Keyboard

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
Main Battery	9 cell ENiMH (32.4 WHr)			
Battery recharge with system OFF	2 hours for single battery			
Battery recharge with system ON	3.5 hours for single battery			
Real time clock/calendar	Yes	Yes	Yes	Yes
Status LCD	Battery Gas Gauge, HDD/CD Activity, FDD Activity, CRT/LCD/SIMUL, Caps Lock, NUM Lock, OVR, Scroll Lock, LED for AC and Battery charging			
Standard Keyboard	83 Keys + 2 Win 95 Keys			
Japanese Keyboard	85 Keys + 2 Win 95 Keys			

Physical

	Model			
Feature	**HiNote VP 5100 LSS5100 1.08GB drive, w/o CD**	**HiNote VP 5200 LSS5120 1.08GB drive, 6X CD**	**HiNote VP 5250 LTS5120 1.08GB drive 6X CD**	**HiNote VP 5350 VTS5133 1.44GB drive 6X CD**
Dimensions WxDxH inches	11.8x8.9x1.9	11.8x8.9x1.9	11.8x8.9x1.9	11.8x8.9x1.9
Weight with FDD	7.11 lbs	7.11 lbs	7.11 lbs	7.11 lbs
Weight with CD-ROM	7.17 lbs	7.17 lbs	7.17 lbs	7.17 lbs

B
Device Mapping

Memory Map

Range	Name	Function
0h to 9FFFFh	640KB System Memory	System Memory Space
A0000h to BFFFFh	128K Video Memory	Graphics Display Memory Buffer
C0000h to C7FFFh	32KB Video BIOS ROM	Shadow BIOS of VGA
C8000h to DFFFFh	96KB I/O Expansion ROM	Reserved ROM Space for I/O Adapter
E0000h to FFFFFh	128KB System ROM	BIOS of System and VGA
100000h to 27FFFFFh	Additional Memory Space	Extended Memory Space, Size from 8MB up to 40MB

DMA Channel Assignments

Channel	Controller	Function
0	1	Not used
1	1	Sound
2	1	Diskette controller
3	1	Not used
4	2	Cascade DMA
5	2	Not used
6	2	Not used
7	2	Not used

Notebook Computer Interrupt Levels

IRQ	Normal Assignments (FIS)
0	System Timer
1	Keyboard
2	Programmable Interrupt Controller
3	Serial Port Com2
4	Serial Port Com1
5	Audio
6	Floppy Disk Controller
7	Parallel Port LPT1
8	CMOS/Real time clock
9	Available
10	Available
11	Available
12	Track Pad
13	Numeric data processor
14	Hard disk controller
15	Available

1. IR port assignment if enabled

I/O Address Map

Range (hexadecimal)	Function
000 - 00F	DMA controller A
020 - 021	Master interrupt controller
024	Index register - system board
026	Data register - system board
040 - 043	Interval timer
060 - 06F	Keyboard controller
070 - 07F	Real-time clock (RTC), NMI
080 - 08F	DMA page register
0A0 - 0A1	Slave interrupt controller
0C0 - 0CF	DMA controller B
0F0	Clear math coprocessor
0F1	Reset math coprocessor
0F8 - 0FF	Math coprocessor
1F0 - 1F7	IDE controller
220-22F	On-board sound (1688)
278 - 27F*	LPT2
2E8 - 2EF*	COM4
2F8 - 2FF*	COM2
378 - 37F*	LPT1
3B0 - 3DF	Mono VGA registers
3BC - 3BE*	LPT3
3C0 - 3DF	Mono VGA
3D0 - 3DF	Color VGA registers
3E8 - 3EF*	COM 3
3F0 - 3F7*	Diskette controller
3F6 - 3F7*	IDE controller (alt status, device address)
3F8 - 3FF*	COM1

* Enabled and disabled using the Setup Utility or Windows 95

C

System Connector Pin Assignments

System Interconnection Diagram

Figure C-1 shows the location of the motherboard connectors. The following sections provide a tabular listing the pin assignments for each of these connectors.

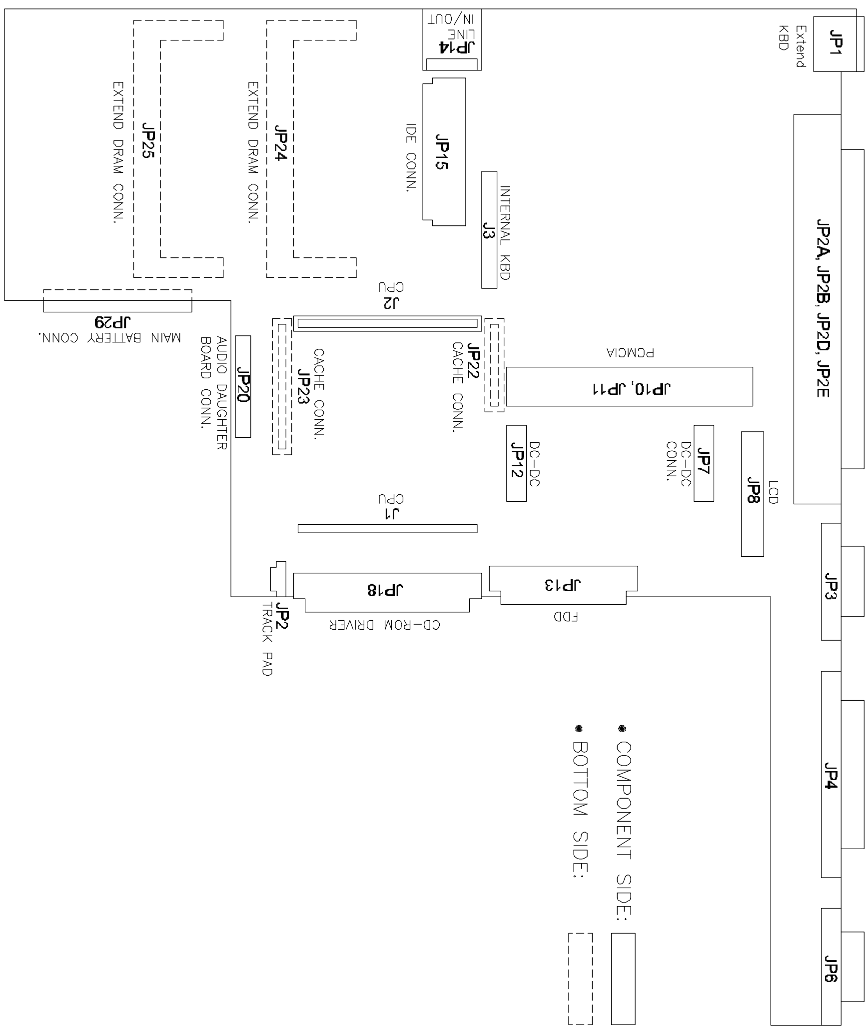


Figure C-1 System Connector Locations

External KBD Connector – JP1

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	KB/PS2_D	2.	NC
3.	GND	4.	+5VS
5.	KB/PS2_D	6.	NC

Docking Connector – JP2A, JP2B, JP2C, JP2D, JP2E

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	GND	2.	PREMATE#
3.	CONA#	4.	AUD_GND
5.	DGNTA#	6.	MOD_IDO
7.	MOD_ID2	8.	AOUT_L
9.	+5VS	10.	PCLK/DOCK
11.	C_BE0#	12.	CBE2#
13.	CBE3#	14.	DADO
15.	DAD4	16.	GND
17.	DLOCK#	18.	DAD10
19..	DAD14	20.	DPERR#
21.	+5VS	22.	DAD18
23.	DAD22	24.	REQ3#
25.	GNT3#	26.	Q_BFVCC
27.	INTC#	28.	GND
29.	DAD26	30.	DAD30
31.	DD0	32.	DD1
33.	DD3	34.	DD4
35.	+3VS	36.	PDIAG#
37.	HDDLED#	38.	GND
39.	PIRQ2	40.	IRQ4
41.	IRQ6	42.	DDC_DATA
43.	MUXSEL	44.	INSPKOFF#
45.	+5VS	46.	DSR1#
47.	RXD1	48.	CTS1#
49.	RI1#	50.	LPD5
51.	LPD1	52.	NC
53.	HSYNC	54.	CRT_GND
55.	CRT_GND	56.	CRT_GND
57.	VIN	58.	CHG/AC#
59.	PREMATE#	60.	DCGND
61.	GND	62.	GND
63.	LINE_IN_L	64.	LIN_IN_R
65.	GND	66.	MOD_ID1
67.	AOUT_R	68.	DPCIRST#
69.	WAKE_UP#	70.	GND

PIN NO	SIGNAL	PIN NO	SIGNAL
71.	C_BE1#	72.	+3VS
73.	DDEVSEL#	74.	DAD2
75.	DAD6	76.	DFRAME#
77.	DAD8	78.	DAD12
79.	GND	80.	DSTOP#
81.	DAD16	82.	DAD20
83.	GND	84.	DREQ#1
85.	DGNT#1	86.	INTA#
87.	DCLKRUN#	88.	DAD24
89.	DAD28	90.	GND
91.	DERQA#	92.	DD2
93.	GND	94.	DD6
95.	SUSP#	96.	RST_BTN#
97.	EN_CHG#	98.	DD_CLK
99.	IRQ3	100.	IRQ5
101.	GND	102.	IRQ7
103.	IRQ9	104.	EXTFDD
105.	DCD1#	106.	TXD1
107.	DTR1#	108.	RTS1#
109.	LPD7	110.	LPD3
111.	NC	112.	VSYNC
113.	G	114.	R
115.	B	116.	ACCON
117.	VIN	118.	C/CP#/G#
119.	DCGND	120.	DCGND
121.	DOCK_SPK_R1	122.	CD_L
123.	MIC	124.	CD_R
125.	M_SEN2#	126.	MIDI_IN
127.	FAX_SPK	128.	DOCKON
129.	IDERST#	130.	DIOR#
131.	SA0	132.	SA1
133.	FDDA#	134.	+3VS
135.	DAD5	136.	DIRDY#
137.	DAD9	138.	DAD13
139.	GND	140.	DTRDY#
141.	DAD17	142.	DAD21
143.	GND	144.	DREQ#0
145.	+3VS	146.	INTB#
147.	S/RBTN	148.	DAD25
149.	DAD29	150.	+3VS
151.	KBD_CLK	152.	AUX_DATA
153.	DD5	154.	DD8
155.	DD10	156.	DCS1#

PIN NO	SIGNAL	PIN NO	SIGNAL
157.	IOCS16#	158.	DD11
159.	DD13	160.	DD15
161.	IRQ10	162.	IRQ12
163.	IRQ15	164.	+3VS
165.	RTSB#	166.	TXDB
167.	DTRB#	168.	RIB#
169.	KEY_LOCK#	170.	LPD4
171.	LPD2	172.	LPTSLCT
173	LPTPE	174.	LPTACK#
175.	LPTERR#	176.	CONA#
177.	VIN	178.	CP/G#
179..	QVCC_OK	180.	DCGND
181.	DOCK_SPK_L1	182.	AUD_GND
183.	AUD_GND	184.	AUD_GND
185.	+12VS	186.	S_UNDOCK
187.	MIDI_OUT	188.	DOCKED#
189.	NIC_PR#	190.	DIOW#
191.	IRQ14	192.	ON/OFFBTN
193.	SA2	194.	DAD1
195.	DAD3	196.	DAD7
197.	DPAR	198.	DAD11
199.	DAD15	200.	DSERR#
201.	+5VS	202.	DAD19
203.	DAD23	204.	DREQ#2
205.	DGNT#2	206.	DGNT#0
207.	INTD#	208.	GND
209.	DAD27	210.	DAD31
211.	KBD_DATA	212.	AUX_CLK
213.	+5VS	214.	DD7
215.	DD9	216.	GND
217.	DCS3#	218.	DIORDY
219.	DD12	220.	DD14
221.	GND	222.	IRQ11
223.	UNDOCK	224.	PMIRQ
225.	DCDB#	226.	DSRB#
227.	RXDB	228.	CTSB#
229.	+5VS	230.	LPD6
231.	LPTBUSY	232.	LPD0
233.	AUTOFD#	234.	INIT#
235.	SLCTIN#	236.	TSR2_FDD#
237.	VIN	238.	VIN
239.	QVCC_OK	240.	DCGND

CRT Connector – JP3

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	R	2.	G
3.	B	4.	NC
5.	CRTGND	6.	CRTGND
7.	CRTGND	8.	CRTGND
9.	NC	10.	CRTGND
11.	NC	12.	DDCDATA1
13.	HSYNC1	14.	VSYNC1
15.	DDCCLK1		

Parallel Port Connector – JP4

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	LPTSTB#	2.	FD0
3.	FD1	4.	FD2
5.	FD3	6.	FD4
7.	FD5	8.	FD6
9.	FD7	10.	LPTACK#
11.	LPTBUSY	12.	LPTPE
13.	LTPSLCT#	14.	LPTAFD#
15.	LPTERR#	16.	LPTINIT#
17.	LPTSLCTIN#	18.	GND
19.	GND	20.	GND
21.	GND	22.	GND
23.	GND	24.	GND
25.	GND		

IR Connector – JP5

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	+5VS	2.	IRTX
3.	GND	4.	IRRX
5	GND	6	INT_SP_R1
7.	INT_SP_R2	8.	+5V51
9.	SW_CLK	10.	SW_DATA
11.	ON/OFFBTN	12.	S/RBTN
13.	INT_SP_L1	14.	INT_SP_L1

Serial Port(COM 1) – JP6

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	DCD1#	2.	RXD1#
3.	TXD1	4.	DTR1#
5.	GND	6.	DSR1#
7.	RTS1#	8.	CTS1#
9.	RI1#		

DC-to-DC Connector – JP7

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	VIN	2.	VIN
3.	VIN	4.	ACOFF#
5.	DCGND	6.	TRICKLEB#
7.	DCGND	8.	BBATT
9.	DCGND	10.	ACCON
11.	B+	12.	ACIN#
13.	B+	14.	A/B#USE
15.	VBTA	16.	FAST#
17.	VBTB	18.	SUSP#
19..	CHGI	20.	+5V51
21.	GND	22.	VS
23.	GND	24.	SYSON#
25.	POK	26.	51ON#
27.	VOLTID3	28.	TRICKLEA#
29.	GND	30.	LI/NIMH#

LCD Connector – JP8

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	FLM	2.	LCD3
3.	DISPOFF#	4.	LCD1
5.	LP	6.	LCD10
7.	GND	8.	LCD12
9.	SHFCLK	10.	LCD0
11.	GND	12.	LCD6
13.	LCD8	14.	GND
15.	LCD9	16.	GND
17.	LCD10	18.	GND
19..	LCD11	20.	LCD18
21.	LCD0	22.	LCD19
23.	LCD1	24.	LCD20
25.	LCD2	26.	LCD21
27	LCD3	28	LCD22

PIN NO	SIGNAL	PIN NO	SIGNAL
29	LCD12	30	LCD23
31	LCD13	32	PID0
33	LCD14	34	PID1
35	LCD15	36	SW_CLK
37	LCD4	38	SW_DATA
39	LCD5	40	AUD_GND
41	LCD6	42	INT_MIC
43	LCD7	44	AUD_GND
45	LCD14	46	B+
47	GND	48	B+
49	GND	50	B+
51	LCD4	52	GND
53	LCD13	54	GND
55	LCD VDD	56	GND
57	LCD VDD	58	INV_CLK
59	LCD VDD	60	INV_RST
61	DC	62	INV_DATA
63	LCD16	64	GND
65	LCD8	66	GND
67	LCD11	68	+5VS
69	LCD5	70	SUSP_LCD
71	LCD17	72	DISPOFF#
73	LCD9	74	GND
75	GND	76	GND

PCMCIA Slot A – JP10

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	GND	2	A_D3
3.	A_D4	4	A_D5
5.	A_D6	6	A_D7
7.	ACE1\	8	A_A10
9.	A_OE\	10	A_A11
11.	A_A9	12	A_A8
13.	A_A13	14	A_A14
15.	A_WE\	16	A_RDY/IRQ\
17.	A_SLOT VCC	18	A_VPP
19..	A_A16	20	A_A15
21.	A_A12	22	A_A7
23.	A_A6	24	A_A5
25.	A_A4	26	A_A3
27.	A_A2	28	A_A1
29.	A_A0	30	A_D0
31.	A_D1	32	A_D2
33.	A_WP/IO16\	34	GND
35.	GND	36	A_CD1
37.	A_D11	38	A_D12
39.	A_D13	40	A_D14
41.	A_D15	42	A_CE2\
43.	A_VS1	44	A_IORD\
45.	A_IORW\	46	A_A17
47.	A_A18	48	A_A19
49.	A_A20	50	A_A21
51.	A_SOLT VCC	52	A_VPP
53.	A_A22	54	A_A23
55.	A_A24	56	A_A25
57.	A_VS2	58	A_RESET
59.	A_WAIT\	60	A_INPACK\
61.	A_REG\	62	A_BVD1/SPKR\
63.	A_BVD1/STS\	64	A_D8
65.	A_D9	66	A_D10
67.	A_CD2\	68	GND

PCMCIA Slot B – JP11

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	GND	2.	B_D3
3.	B_D4	4.	B_D5
5.	B_D6	6.	B_D7
7.	BCE1\	8.	B_A10
9.	B_OE\	10.	B_A11
11.	B_A9	12.	B_A8
13.	B_A13	14.	B_A14
15.	B_WE\	16.	B_RDY/IRQ\
17.	B_SLOT VCC	18.	B_VPP
19..	B_A16	20.	B_A15
21.	B_A12	22.	B_A7
23.	B_A6	24.	B_A5
25.	B_A4	26.	B_A3
27.	B_A2	28.	B_A1
29.	B_A0	30.	B_D0
31.	B_D1	32.	B_D2
33.	B_WP/IO16\	34.	GND
35.	GND	36.	B_CD1
37.	B_D11	38.	B_D12
39.	B_D13	40.	B_D14
41.	B_D15	42.	B_CE2\
43.	B_VS1	44.	B_IORD\
45.	B_IORW\	46.	B_A17
47.	B_A18	48.	B_A19
49.	B_A20	50.	B_A21
51.	B_SOLT VCC	52.	B_VPP
53.	B_A22	54.	B_A23
55.	B_A24	56.	B_A25
57.	B_VS2	58.	B_RESET
59.	B_WAIT\	60.	B_INPACK\
61.	B_REG\	62.	B_BVD2/SPKR\
63.	B_BVD1/STS\	64.	B_D8
65.	B_D9	66.	B_D10
67.	B_CD2\	68.	GND

DC-to-DC Connector – JP12 Conn2

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	VMBA	2.	VMBA
3.	VMBA	4.	VMBA
5.	VMBA	6.	VMBA
7.	VMBB	8.	VMBB
9.	VMBB	10.	VMBB
11.	GND	12.	GND
13.	GND	14.	GND
15.	CPUVCC	16.	VCCCPU
17.	CPUVCC	18.	VCCCPU
19..	CPUVCC	20.	+5V
21.	+5V	22.	+5V
23.	GND	24.	GND
25.	GND	26.	GND
27.	+3V	28.	+3V
29.	+12V	30.	+3V

FDD Connector – JP13

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	MBB	2.	DCGND
3.	MBB	4.	DCGND
5.	MBB	6.	DCGND
7.	MBB	8.	DCGND
9.	MBB	10.	DCGND
11.	SMDB	12.	NC
13.	TEMPB	14.	NC
15.	CHG/AC#	16.	NC
17.	ACCON	18.	NC
19.	SMCB	20.	NC
21.	+5V	22.	GND
23.	+5V	24.	WDATA
25.	DSKCHG#	26.	NC
27.	MTRO#	28.	FDDIR
29.	STEP#	30.	3MODE#
31.	INDEX#	32.	HDSEL#
33.	WGATE#	34.	WP#
35.	TRACK0	36.	DRVO#
37.	GND	38.	FDDA#
39.	RDATA	40.	GND

Audio IN/OUT Connector – JP14

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	SPKOUT_L1	2.	EXT_SPK_L
3.	DCGND	4.	DIS_MIC
5.	DCGNDT	6	AUD_GND
7.	ACCON	8.	MIC
9.	DCGND	10.	AUD_GND
11.	VIN	12.	NC
13.	SPKOUT_R1	14.	EXT_SPK_R

IDE Connector – JP15

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	+5VS	2.	GND
3.	+5VS	4.	+5VS
5.	GND	6.	HDDLED#
7.	DCS3#	8.	DCS1#
9.	SA2	10.	SA0
11.	GND	12.	SA1
13.	PDIAG#	14.	IRQ14
15.	NC	16.	IORDY
17.	GND	18.	DIOR#
19.	GND	20.	DIOW#
21.	GND	22.	GND
23.	DD15	24.	DD0
25.	DD14	26.	DD1
27.	DD13	28.	DD2
29.	DD12	30.	DD3
31.	DD11	32.	DD4
33.	DD10	34.	DD5
35.	DD9	36.	DD6
37.	DD8	38.	DD7
39.	GND	40.	IDERST#

CD_ROM Driver Connector – JP18

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	IDERST#	2.	GND
3.	DD7	4.	DD8
5.	DD6	6.	DD9
7.	DD5	8.	DD10
9.	DD4	10.	DD11
11.	DD3	12.	DD12
13.	DD2	14.	DD13
15.	DD1	16.	DD14
17.	DD0	18.	DD15
19..	GND	20.	NC
21.	NC	22.	GND
23.	DIOW#	24.	GND
25.	DIOR#	26.	GND
27.	DIORDY	28.	NC
29.	NC	30.	GND
31.	IRQ14	32.	NC
33.	SA1	34.	PDIAG
35.	SA0	36.	SA2
37.	DCS1#	38.	DCS3#
39.	HDDLED#	40.	GND
41.	+5V	42.	+5VS
43.	GND	44.	NC
45.	NC	46.	NC
47.	CD_R	48.	GND
49.	CD_L	50.	GND

Track Pad Connector – JP2

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	VCC	2.	TP_CLK
3.	TP_DATA	4.	GND

Audio Daughter Board Connector – JP20

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	SA0	2.	AUDGND
3.	SA1	4.	MIC
5.	SA2	6.	AUDGND
7.	SA3	8.	NC
9.	SA4	10.	AUDGND
11.	SA5	12.	SA10
13.	SA6	14.	SD0
15.	SA7	16.	SD1
17.	SA8	18.	SD2
19..	SA9	20.	SD3
21.	NC	22.	SD4
23.	IOR#	24.	SD5
25.	IOW#	26.	SD6
27.	AEN	28.	SD7
29.	RSTDRV	30.	PMIRQ
31.	GND	32.	PMDRQ0
33.	PMDAK0#	34.	CD_R
35.	LINE_IN_R	36.	CD_L
37.	LINE_IN_L	38.	SA11
39.	GND	40.	MIDI_IN
41.	14.3M_AUD	42.	MIDI_OUT
43.	GND	44.	JOYR#
45.	AOUT_R	46.	JOYW#
47.	AOUT_L	48.	EXTSPK_R
49.	GND	50.	SPKOUT_R2
51.	AUD_OFF	52.	+5VS
53.	TC	54.	+5VS
55.	+12VS	56.	+5VS
57.	EXTSPK_L	58.	NC
59.	SPKOUT_L2	60.	SYS_SPKR

Cache Connector – JP22

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	+3VS	2.	D20
3.	D0	4.	D21
5.	D1	6.	D22
7.	D2	8.	D23
9.	D3	10.	+3VS
11.	GND	12.	D24
13.	D4	14.	D25
15.	D5	16.	D26
17.	D6	18.	D27
19..	D7	20.	GND
21.	+3VS	22.	D28
23.	D8	24.	D29
25.	D9	26.	D30
27.	DD10	28.	D31
29.	D11	30.	+3VS
31.	GND	32.	ADS#
33.	D12	34.	CADS#
35.	D13	36.	CADV#
37.	D14	38.	COE#
39.	D15	40.	GND
41.	+3VS	42.	CCS#
43.	D16	44.	CWE#0
45.	D17	46.	CWE#1
47.	D18	48.	CWE#2
49.	D19	50.	A30

Extend DRAM Connector – JP24

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	GND	2.	MD32
3.	MD33	4.	MD34
5.	MD35	6.	MD36
7.	MD37	8.	MD38
9.	MD39	10.	MEMVCC
11.	DPU0	12.	MMA0B
13.	MMA1B	14.	MMA2
15.	MMA3	16.	MMA4
17.	MMA5	18.	MMA6
19..	MMA10	20.	NC
21.	MD40	22.	MD41
23.	MD42	24.	MD43
25.	MD44	26.	MD45
27.	MD46	28.	MMA7
29.	MMA11	30.	MEMVCC
31.	MMA8	32.	MMA9
33.	RAS#2	34.	RAS#1
35.	MD47	36.	NC
37.	MD48	38.	MD49
39.	GND	40.	CAS#4
41.	CAS#6	42.	CAS#7
43.	CAS#5	44.	RAS#1
45.	CAS#2	46.	NC
47.	MWEB#	48.	NC
49.	MD50	50.	MD51
51.	MD 52	52.	MD53
53.	MD 54	54.	MD55
55.	NC	56.	MD56
57.	MD 57	58.	MD58
59.	MD 60	60.	MD59
61.	+MEMVCC	62.	MD61
63.	MD62	64.	MD63
65.	NC	66.	DPU1
67.	DPU2	68.	DPU3
69.	DPU4	70.	DPU5
71.	DPU6	72.	GND

Cache Connector – JP23

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	+3VS	2.	D56
3.	D32	4.	57
5.	D33	6.	58
7.	D34	8.	59
9.	D35	10.	+3VS
11.	GND	12.	D60
13.	D36	14.	61
15.	D37	16.	62
17.	D38	18.	63
19..	D39	20.	GND
21.	+3VS	22.	A16
23.	D40	24.	A17
25.	D41	26.	A18
27.	D42	28.	A3
29.	D43	30.	+3VS
31.	GND	32.	A4
33.	D44	34.	A5
35.	D45	36.	A6
37.	D46	38.	A7
39.	D47	40.	GND
41.	+3VS	42.	A8
43.	D48	44.	A9
45.	D49	46.	A10
47.	D50	48.	A11
49.	D51	50.	+3VS
51.	GND	52.	A12
53.	D52	54.	A13
55.	D53	56.	A14
57.	D54	58.	A15
59.	D55	60.	GND
61.	+3VS	62.	TA4
63.	TA0	64.	TA5
65.	TA1	66.	TA6
67.	TA2	68.	TA7
69.	TA3	70.	+3VS
71.	GND	72.	CWE#6
73.	CWE#3	74.	CWE#7
75.	CWE#4	76.	GND
77.	CWE#5	78.	HCLK_SRAMO
79.	TWE#	80.	GND

Extend DRAM Connector – JP25

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	GND	2.	MD0
3.	MD1	4.	MD2
5.	MD3	6.	MD4
7.	MD5	8.	MD6
9.	MD7	10.	+MEMVCC
11.	DPU0	12.	MMAOB
13.	MMA1B	14.	MMA2
15.	MMA3	16.	MMA4
17.	MMA5	18.	MMA6
19..	MMA10	20.	NC
21.	MD8	22.	MD9
23.	MD10	24.	MD11
25.	MD12	26.	MD13
27.	MD14	28.	MMA7
29.	MMA11	30.	+MEMVCC
31.	MMA8	32.	MMA9
33.	RAS#2	34.	RAS#1
35.	MD15	36.	NC
37.	MD16	38.	MD17
39.	GND	40.	CAS#0
41.	CAS#2	42.	CAS#3
43.	CAS#1	44.	RAS#1
45.	RAS#2	46.	NC
47.	MWEB#	48.	NC
49.	MD18	50.	MD19
51.	MD20	52.	MD21
53.	MD22	54.	MD23
55.	NC	56.	MD24
57.	MD25	58.	MD26
59.	MD28	60.	MD27
61.	+MEMVCC	62.	MD29
63.	MD30	64.	MD31
65.	NC	66.	DPU1
67.	DPU2	68.	DPU3
69.	DPU4	70.	DPU5
71.	DPU6	72.	GND

Main Battery Connector – JP29

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	MBA	2.	SMCA
3.	SMDA	4.	TEMPA
5.	DCGND		

CPU Daughter-Board Connector – J1

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	BE#3	2.	BE#2
3.	BE#1	4.	BE#0
5.	A20M#	6.	FLUSH#
7.	+3VSCPUC	8.	+3VSCPUC
9.	GND	10.	GND
11.	BUSCHK#	12.	W/R#
13.	NC	14.	HITM#
15.	ADS#	16.	EADS#
17.	+3VSCPUC	18.	+3VSCPUC
19..	GND	20.	GND
21.	D/C#	22.	NC
23.	NC	24.	LOCK#
25.	AP	26.	NC
27.	+3VSCPUC	28.	+3VSCPUC
29.	GND	30.	GND
31.	NC	32.	NC
33.	NC	34.	NC
35.	SMIACT#	36.	HOLD
37.	+3VSCPUC	38.	+3VSCPUC
39.	GND	40.	GND
41.	WB/WT#	42.	NA#
43.	BOFF#	44.	BRDY#
45.	KEN#	46.	AHOLD
47.	+3VSCPUC	48.	+3VSCPUC
49.	GND	50.	GND
51.	KEN#	52.	EWBE#
53.	CACHE#	54.	M/IO#
55.	NC	56.	NC
57.	+3VSCPUC	58.	+3VSCPUC
59.	GND	60.	GND
61.	NC	62.	NC
63.	FERR#	64.	NC
65.	DP7	66.	D63
67.	+3VSCPUC	68.	+3VSCPUC
69.	GND	70.	GND

PIN NO	SIGNAL	PIN NO	SIGNAL
71.	D62	72.	D61
73.	D60	74.	D59
75.	D58	76.	D57
77.	+3VSCPUC	78.	+3VSCPUC
79.	GND	80.	GND
81.	D56	82.	DP6
83.	D55	84.	D54
85.	D53	86.	D52
87.	+3VSCPUC	88.	+3VSCPUC
89.	GND	90.	GND
91.	D51	92.	D50
93.	D49	94.	D48
95.	DP5	96.	D47
97.	+3VSCPUC	98.	+3VSCPUC
99.	GND	100.	GND
101.	D46	102.	D45
103.	D44	104.	D43
105.	D42	106.	D41
107.	+3VSCPUC	108.	+3VSCPUC
109.	GND	110.	GND
111.	D40	112.	DP4
113.	D39	114.	D38
115.	D37	116.	D36
117.	+3VSCPUC	118.	+3VSCPUC
119.	GND	120.	GND
121.	D35	122.	D34
123.	D33	124.	D32
125.	DP3	126.	D31
127.	+3VSCPUC	128.	+3VSCPUC
129.	GND	130.	GND
131.	D30	132.	D29
133.	D29	134.	D27
135.	D26	136.	D25
137.	+3VSCPUC	138.	+3VSCPUC
139.	GND	140.	GND
141.	D24	142.	DP2
143.	D23	144.	D22
145.	D21	146.	D20
147.	+3VSCPUC	148.	+3VSCPUC
149.	GND	150.	GND
151.	NC	152.	NC
153.	+3VSCPUC	154.	+3VSCPUC
155.	GND	156.	GND

PIN NO	SIGNAL	PIN NO	SIGNAL
157.	VOLTID1	158.	VOLTID2
159.	VOLTID3	160.	+5VS

CPU Daughter-Board Connector – J2

PIN NO	SIGNAL	PIN NO	SIGNAL
1.	GND	2.	GND
3.	CORE_VCCCPU	4.	CORE_VCCCPU
5.	D19	6.	D18
7.	D17	8.	D16
9.	GND	10.	GND
11.	CORE_VCCCPU	12.	CORE_VCCCPU
13.	DP1	14.	D15
15.	D14	16.	D13
17.	GND	18.	GND
19..	CORE_VCCCPU	20.	CORE_VCCCPU
21.	D12	22.	D11
23.	D10	24.	D9
25.	GND	26.	GND
27.	CORE_VCCCPU	28.	CORE_VCCCPU
29.	D8	30.	DP0
31.	D7	32.	D6
33.	GND	34.	GND
35.	CORE_VCCCPU	36.	CORE_VCCCPU
37.	D5	38.	D4
39.	D3	40.	D2
41.	GND	42.	GND
43.	CORE_VCCCPU	44.	CORE_VCCCPU
45.	D1	46.	D0
47.	NC	48.	NC
49.	GND	50.	GND
51.	CORE_VCCCPU	52.	CORE_VCCCPU
53.	NC	54.	NC
55.	NC	56.	NC
57.	GND	58.	GND
59.	CORE_VCCCPU	60.	CORE_VCCCPU
61.	NC	62.	NC
63.	CPU_TEMP	64.	STPCLK#
65.	GND	66.	GND
67.	CORE_VCCCPU	68.	CORE_VCCCPU
69.	CORE_VCCCPU	70.	CORE_VCCCPU
71.	BF1	72.	PEN#
73.	GND	74.	GND

PIN NO	SIGNAL	PIN NO	SIGNAL
75.	CORE_VCCCPU	76.	CORE_VCCCPU
77.	CPUINIT	78.	IGNNE#
79.	SMI#	80.	INTR
81.	GND	82.	GND
83.	CORE_VCCCPU	84.	CORE_VCCCPU
85.	NC	86.	NMI
87.	A21	88.	A22
89.	GND	90.	GND
91.	CORE_VCCCPU	92.	CORE_VCCCPU
93.	A23	94.	A24
95.	A25	96.	A26
97.	GND	98.	GND
99.	CORE_VCCCPU	100.	CORE_VCCCPU
101.	A27	102.	A28
103.	A29	104.	A30
105.	GND	106.	GND
107.	CORE_VCCCPU	108.	CORE_VCCCPU
109.	A31	110.	A3
111.	A4	112.	A5
113.	GND	114.	GND
115.	CORE_VCCCPU	116.	CORE_VCCCPU
117.	A6	118.	A7
119.	A8	120.	A9
121.	GND	122.	GND
123.	CORE_VCCCPU	124.	CORE_VCCCPU
125.	A10	126.	A11
127.	A12	128.	A13
129.	GND	130.	GND
131.	CORE_VCCCPU	132.	CORE_VCCCPU
133.	A14	134.	A15
135.	A16	136.	A17
137.	GND	138.	GND
139.	CORE_VCCCPU	140.	CORE_VCCCPU
141.	A18	142.	A19
143.	A20	144.	CORE_VCCCPU
145.	CPURST	146.	HCLKP54LM
147.	CORE_VCCCPU	148.	CORE_VCCCPU
149.	GND	150.	GND

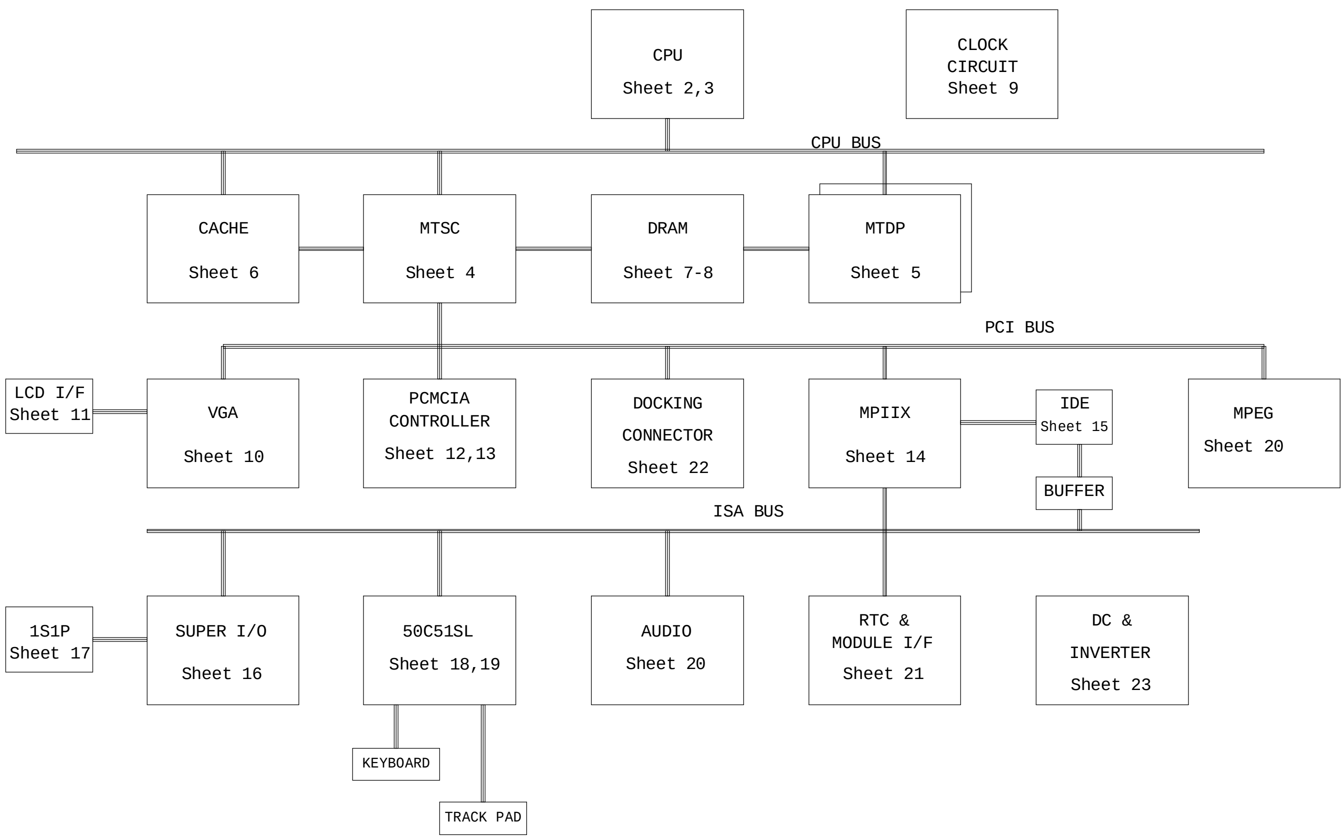
PIN NO	SIGNAL	PIN NO	SIGNAL
151.	NC	152.	BE#7
153.	BE#6	154.	GND
155.	CORE_VCCCPU	156.	CORE_VCCCPU
157.	BE#4	158.	BE#5
159.	CORE_VCCCPU	160.	CORE_VCCCPU

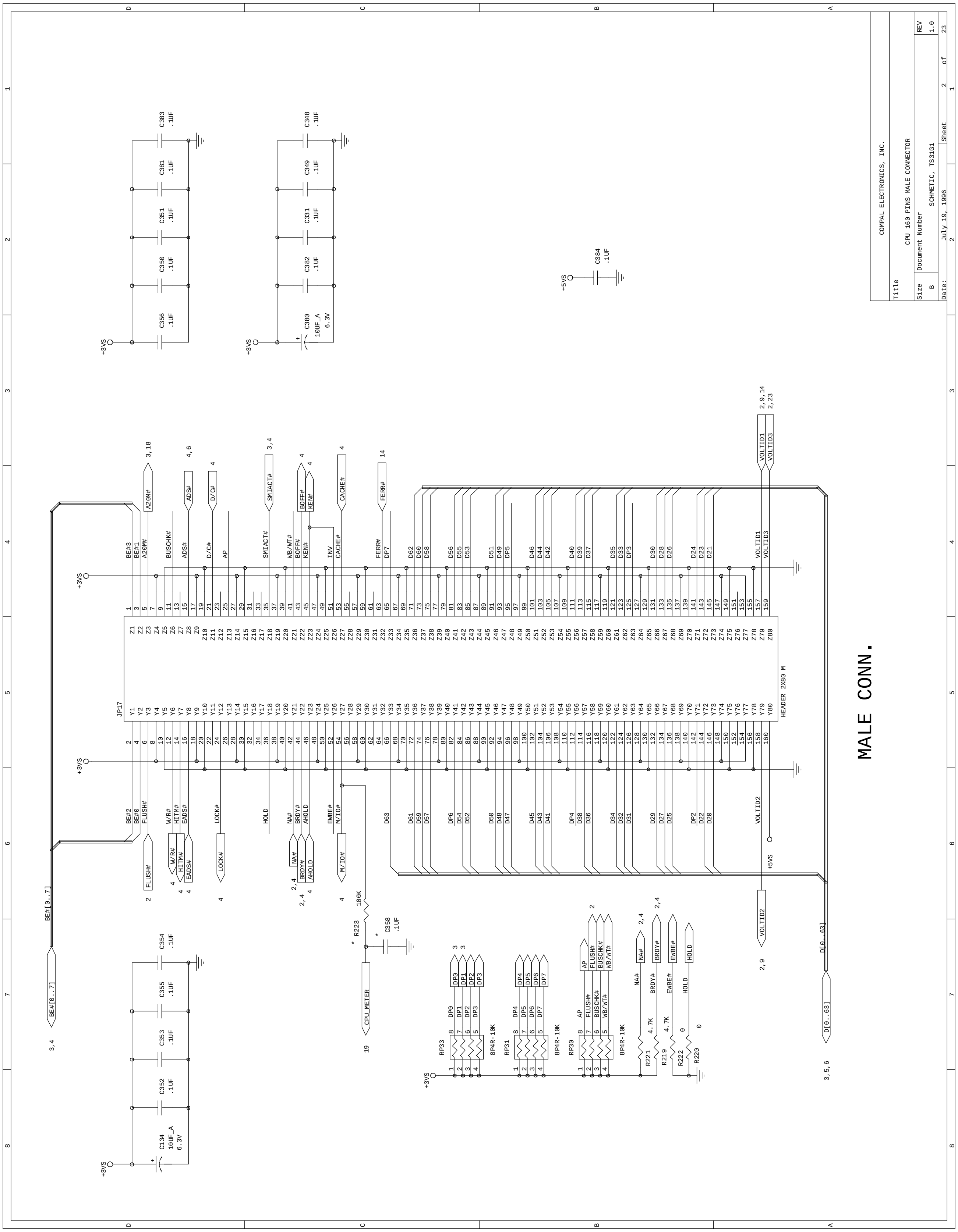
Internal Keyboard Connector – J3

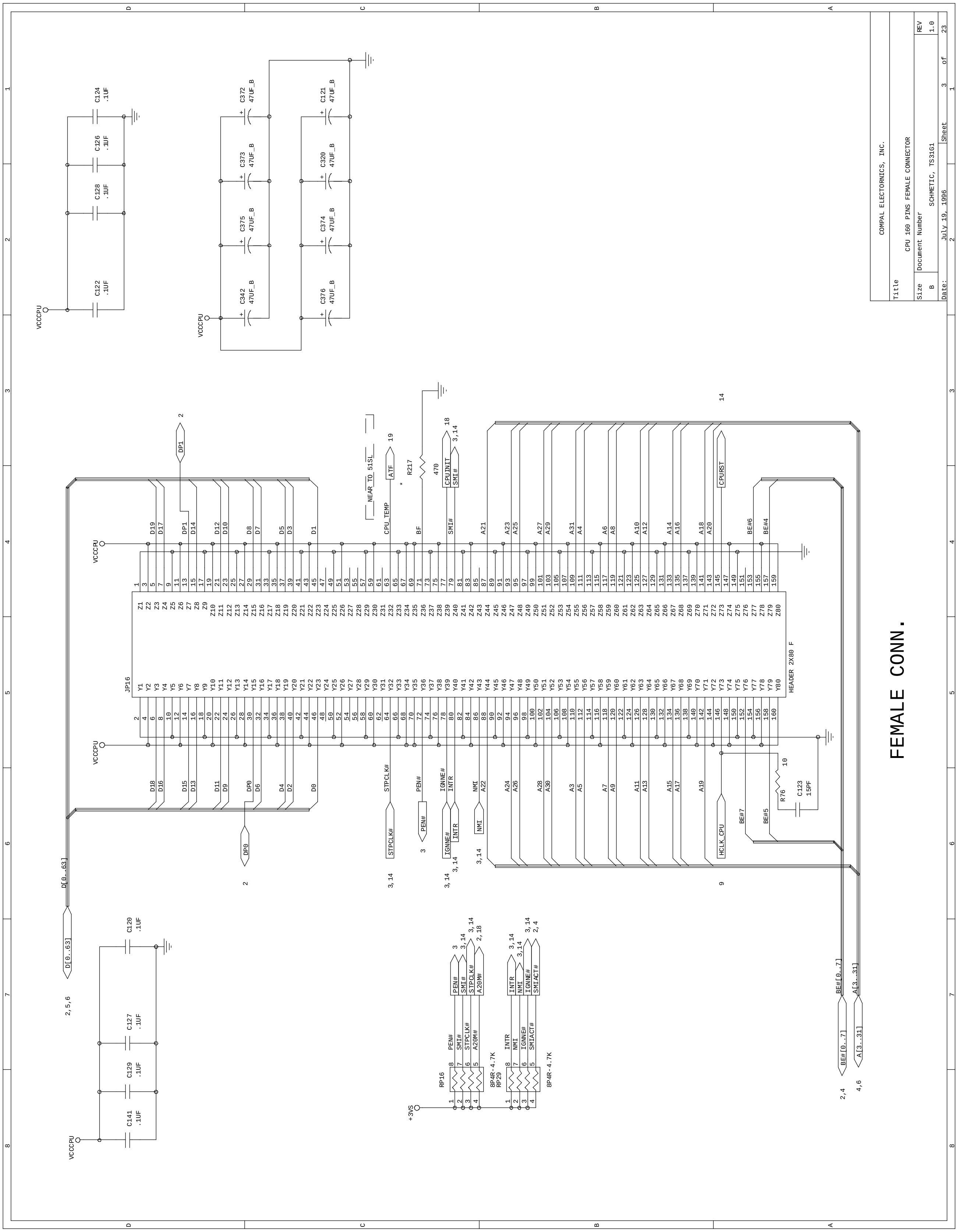
PIN NO	SIGNAL	PIN NO	SIGNAL
1.	KSO0	2.	KSO1
3.	KSO2	4.	KSO3
5.	KSO4	6.	KSO5
7.	KSO6	8.	KSO7
9.	KSO8	10.	KSO9
11.	KSO10	12.	KSO11
13.	KSO12	14.	KSO13
15.	KSO14	16.	KSO15
17.	KSI0	18.	KSI1
19.	KSI2	20.	KSI3
21.	KSI4	22.	KSI5
23.	KSI6	24	KSI7

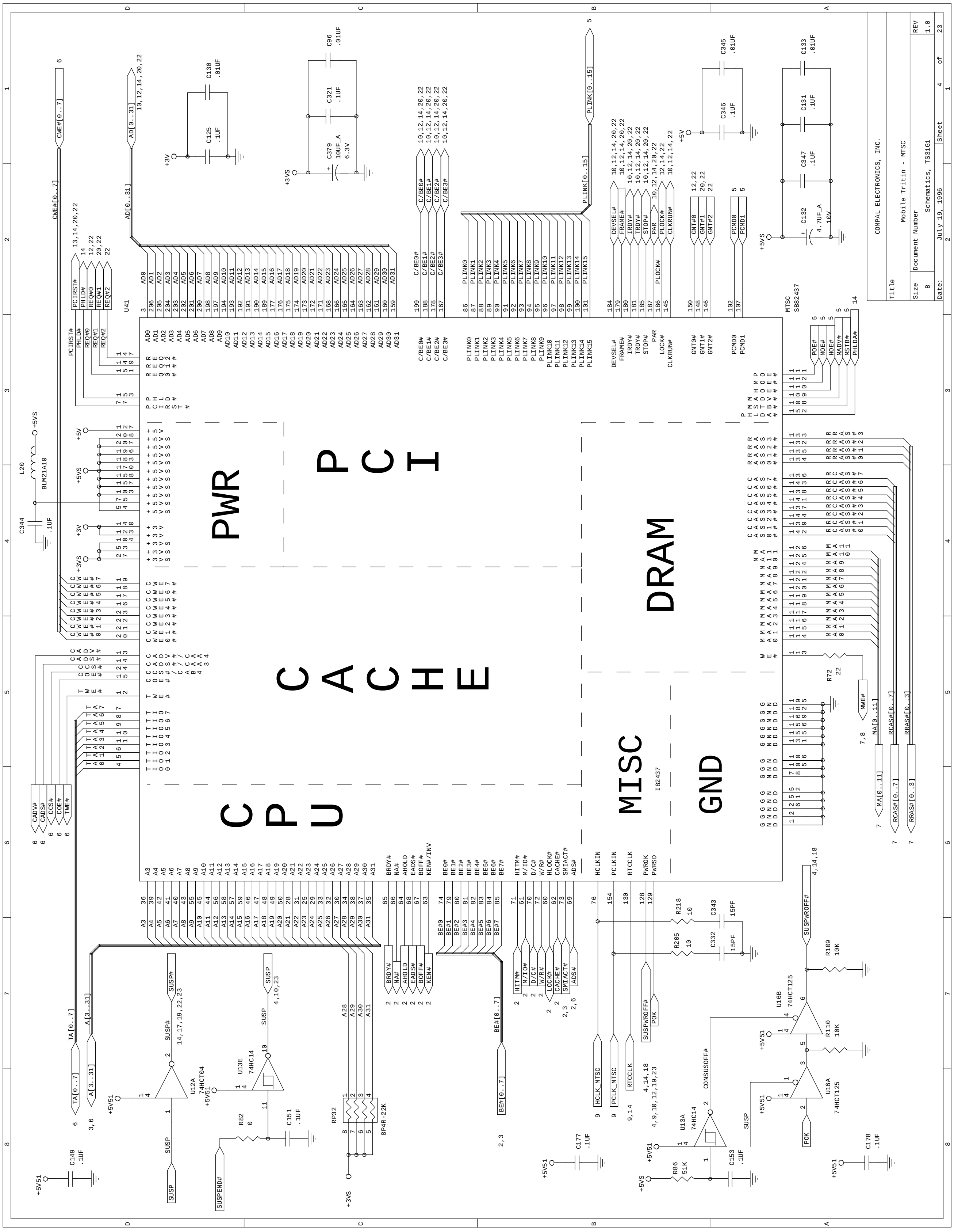
D
Schematics

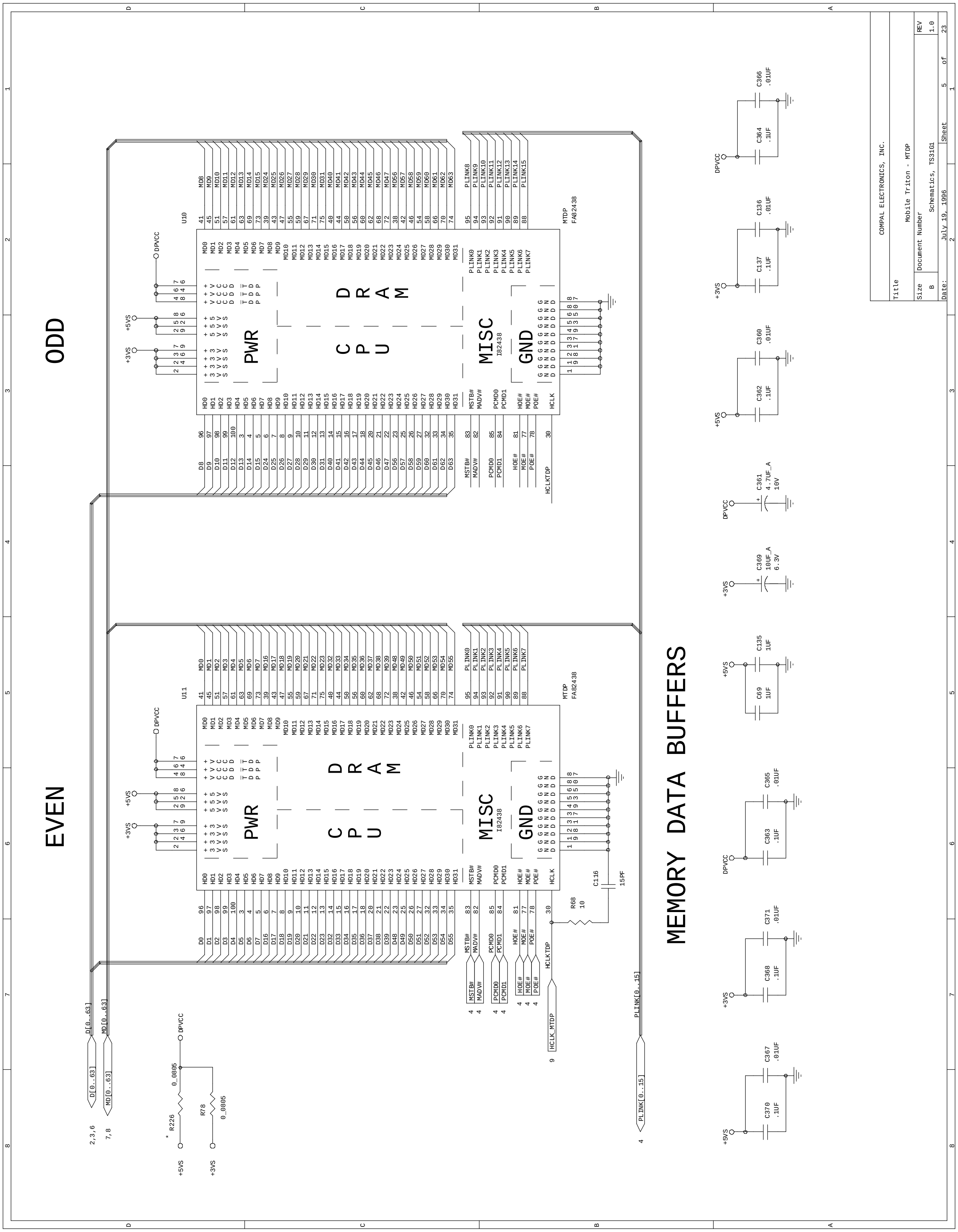
The following functional diagram gives the schematic sheet number(s) for each functional block.

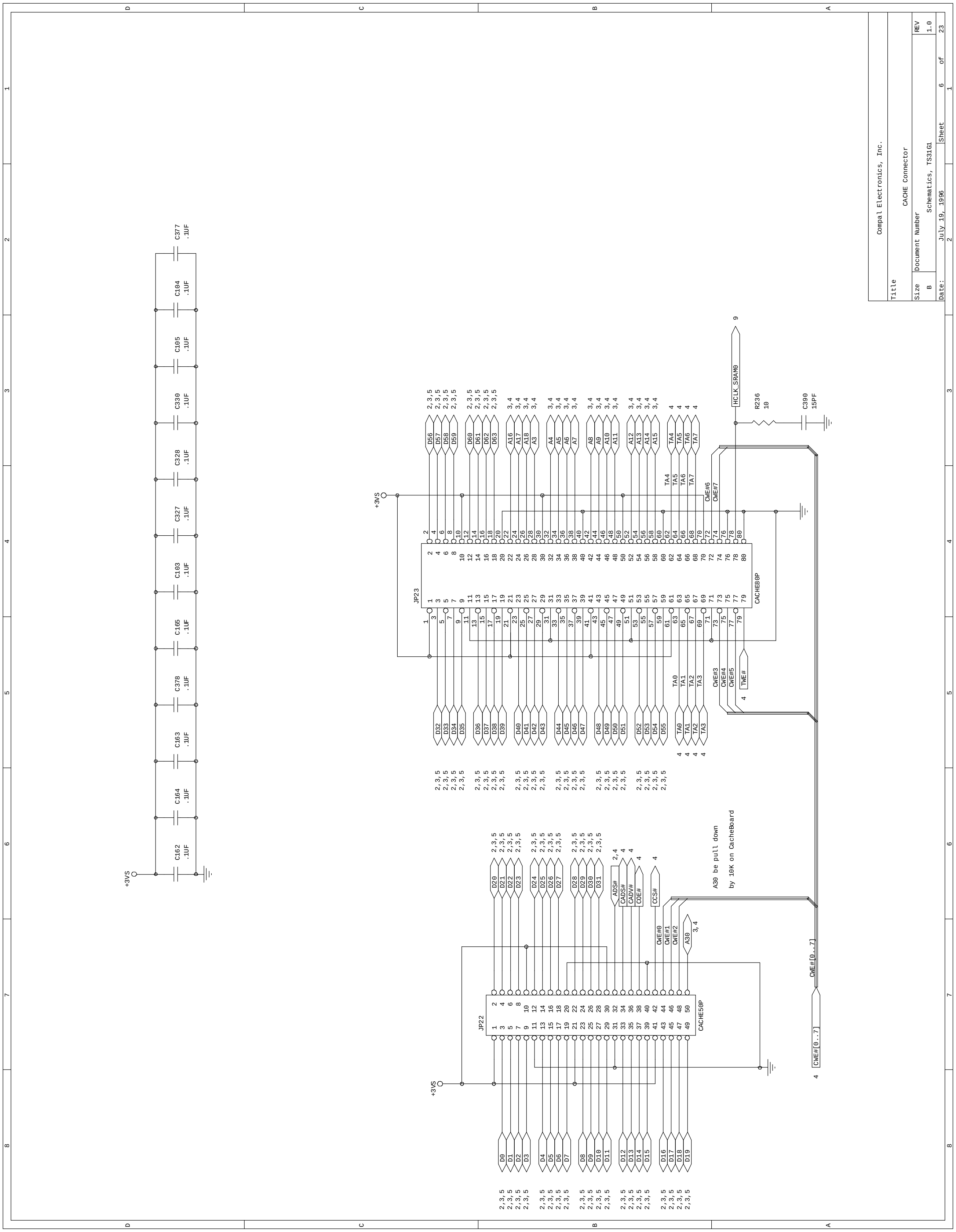


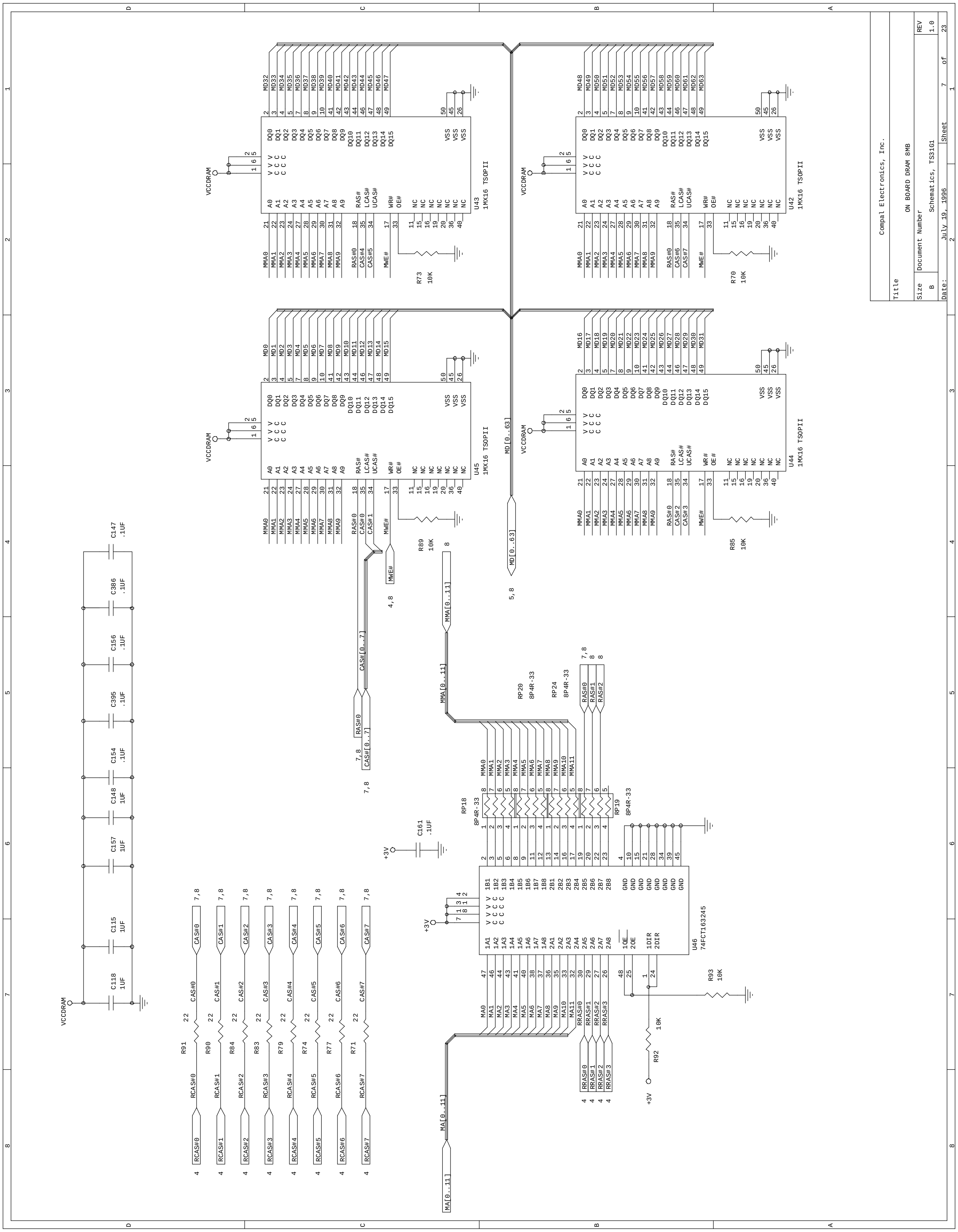

COMPAL ELECTRONICS, INC.
Title
CPU 160 PINS MALE CONNECTOR
Size
B
Document Number
SCHMETIC, TS31G1
REV
1.0
Date:
July 19, 1996
Sheet
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of
23
MALE CONN.
HEADER 2X80 M
JP17


COMPAL ELECTORNICS, INC.
CPU 160 PINS FEMALE CONNECTOR
SCHMETIC, TS31G1
July 19, 1996
FEMALE CONN.

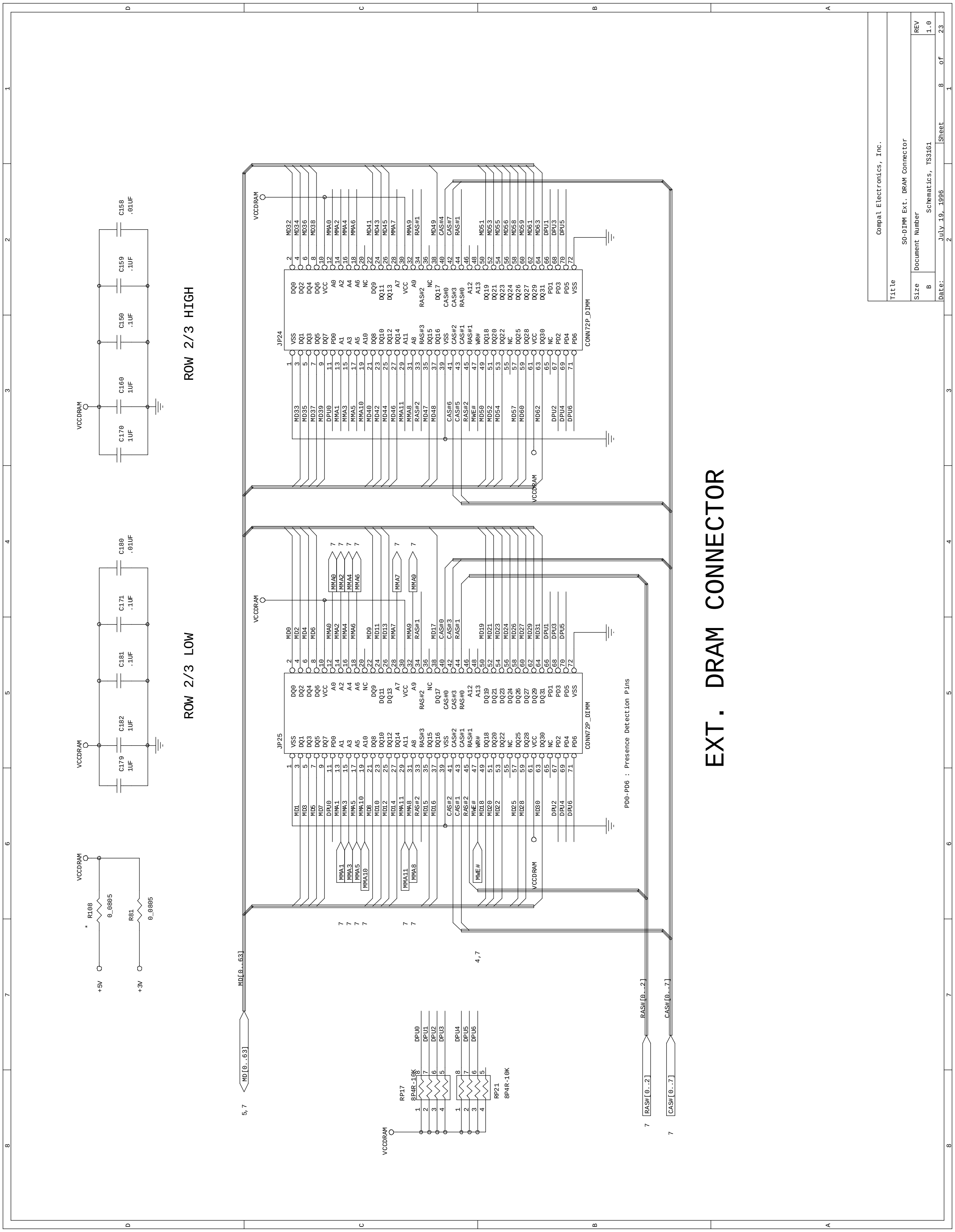

COMPAL ELECTRONICS, INC.
Mobile Tritin - MTSC
Schematics, TS3161
July 19, 1996
PWR
PCI
DRAM
CACHE
CPU
MISC
GND
MTSC
SB82437
I82437

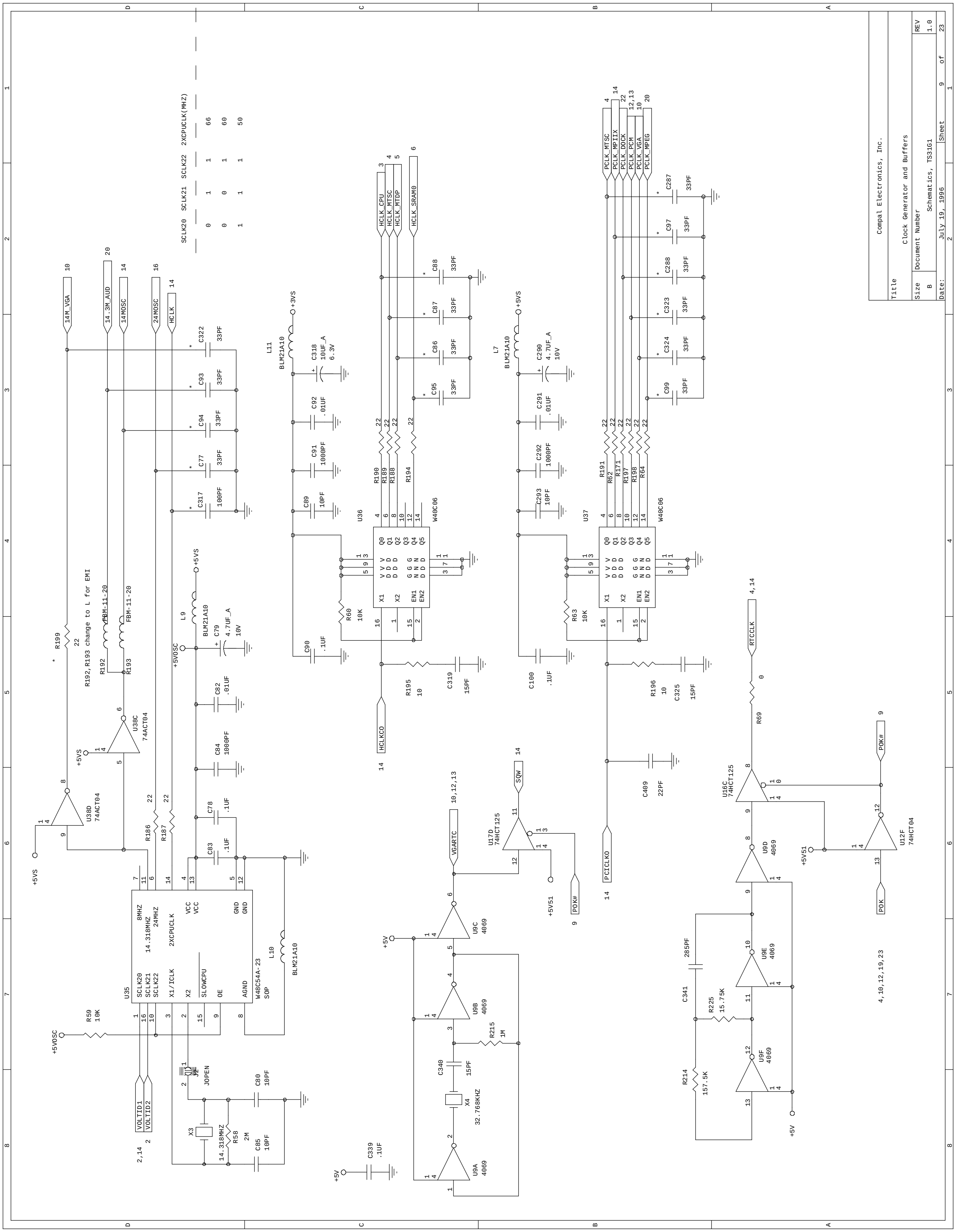

ODD
EVEN
MEMORY DATA BUFFERS
PWR
CPU
DRAM
MISC
GND
COMPAL ELECTRONICS, INC.
Mobile Triton - MTDP
Schematics, TS31G1
July 19, 1996

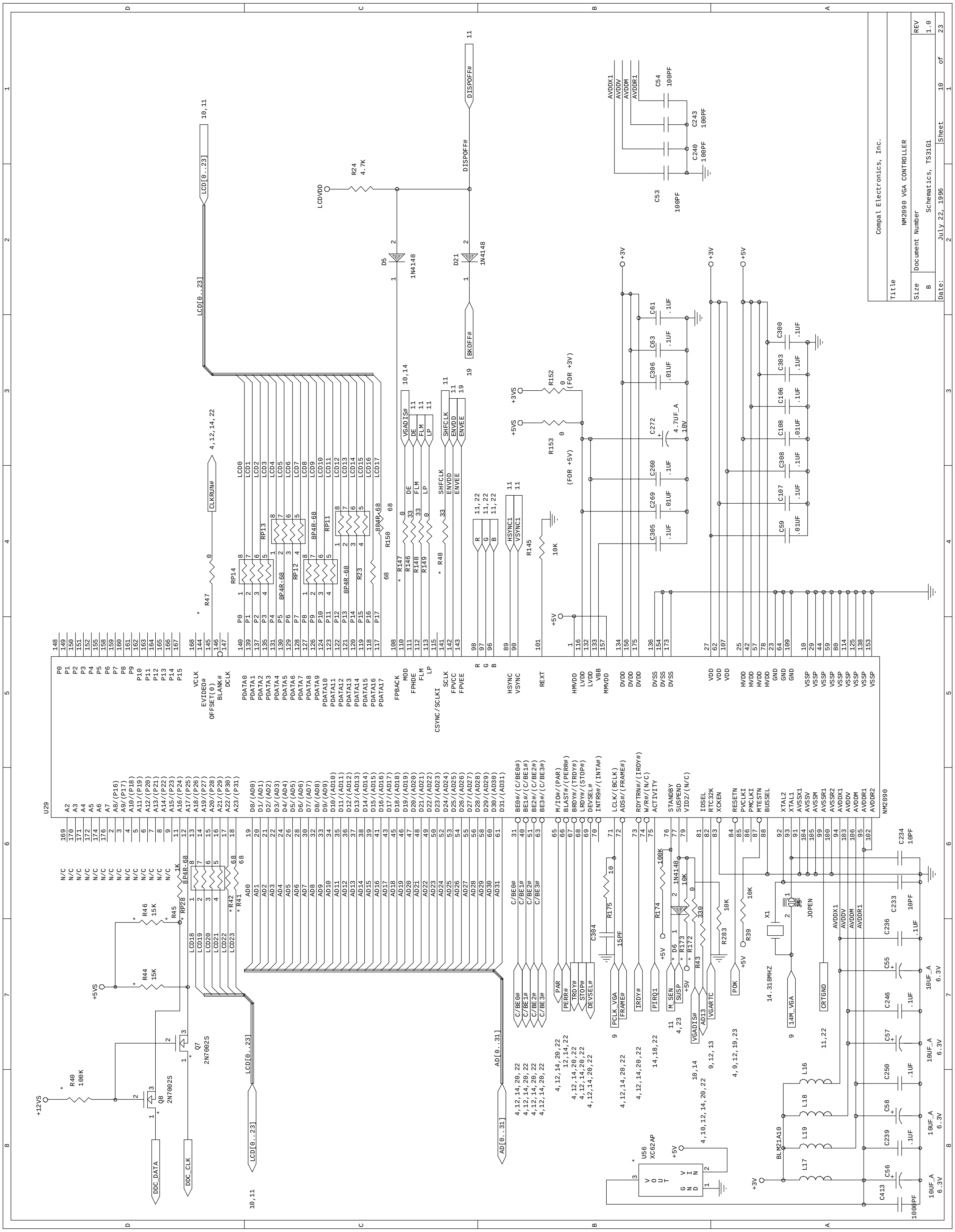

Compal Electronics, Inc.
Title
CACHE Connector
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date: July 19, 1996
Sheet 6 of 23
JP23
CACHE80P
JP22
CACHE50P
A30 be pull down
by 10K on CacheBoard
HCLK_SRAM0
R236
10
C390
15PF
+3VS

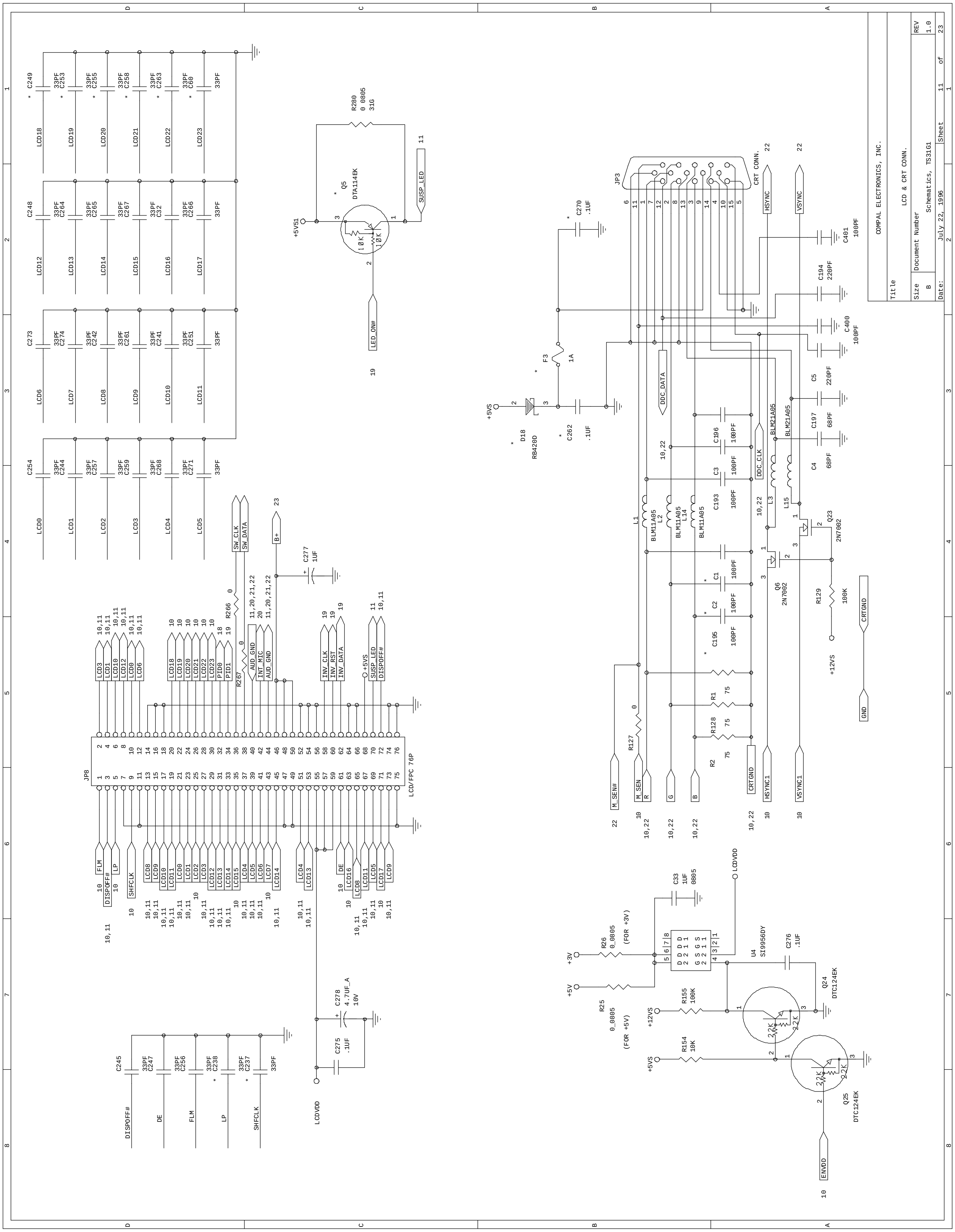


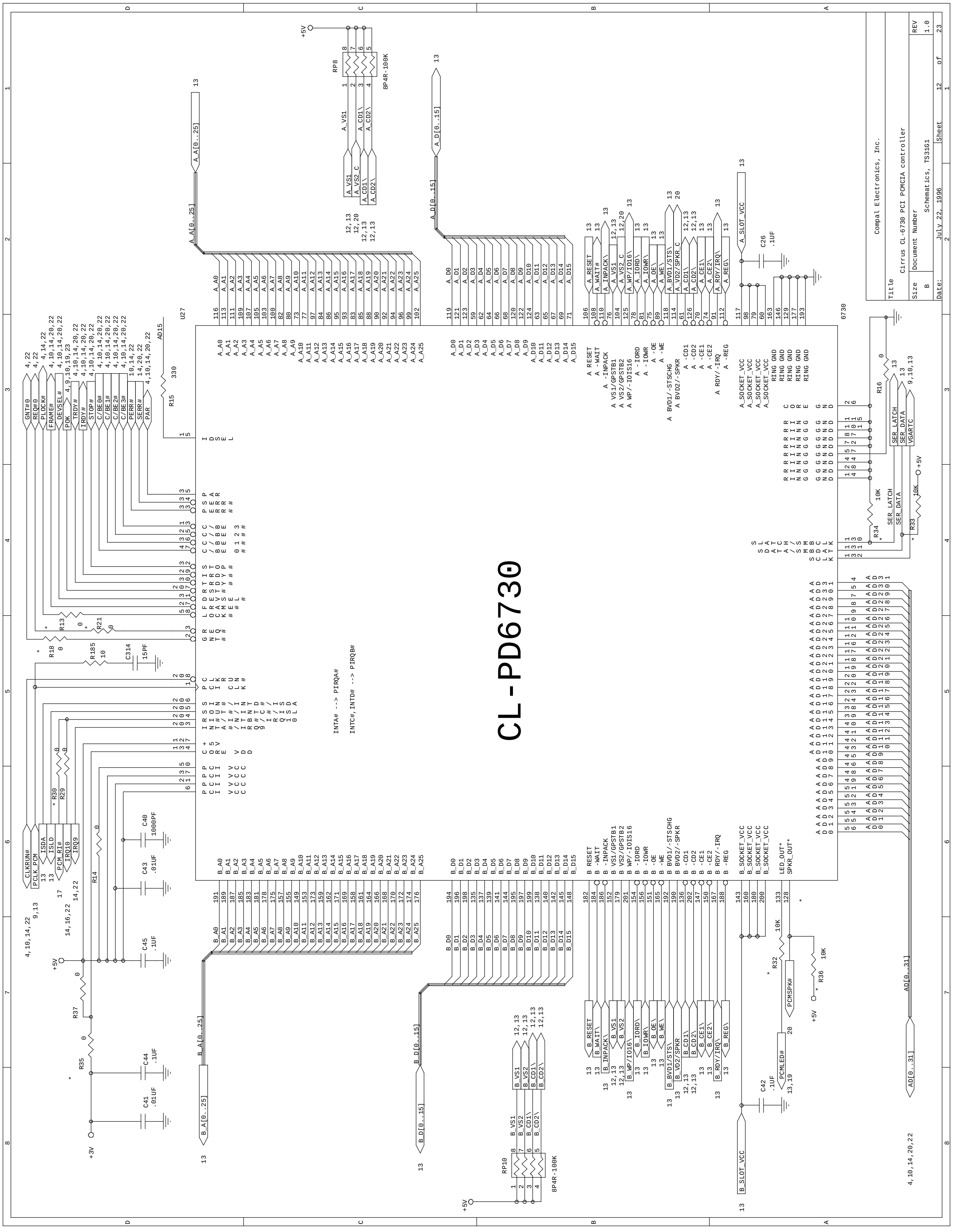
Compal Electronics, Inc.
Title
ON BOARD DRAM 8MB
Size B
Document Number
Schematics, TS31G1
REV 1.0
Date: July 19, 1996
Sheet 7 of 23

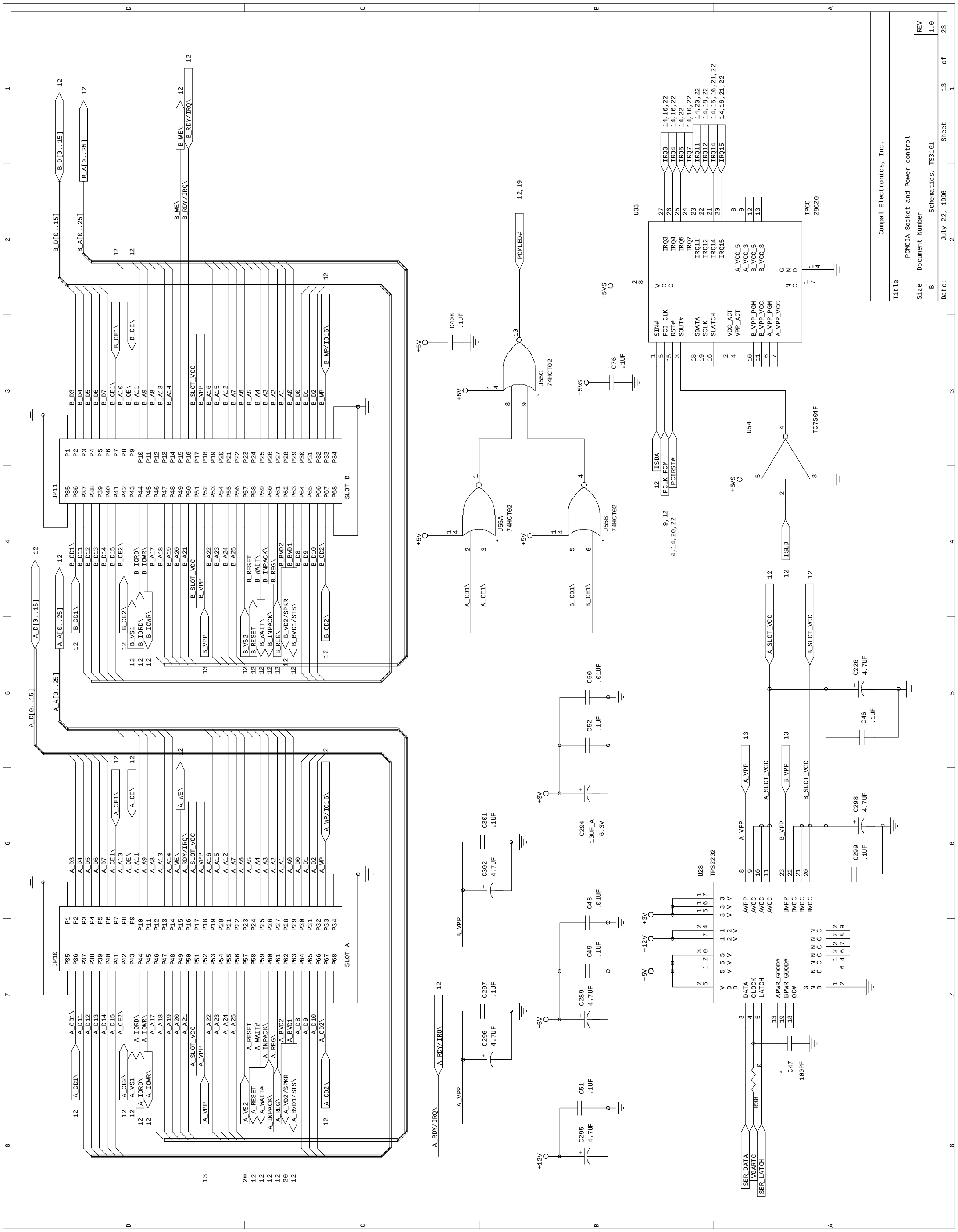

EXT. DRAM CONNECTOR
ROW 2/3 HIGH
ROW 2/3 LOW
JP24
JP25
CONN72P_DIMM
PD0-PD6 : Presence Detection Pins
Compal Electronics, Inc.
SO-DIMM Ext. DRAM Connector
Schematics, TS31G1
July 19, 1996
Sheet 8 of 23
REV 1.0

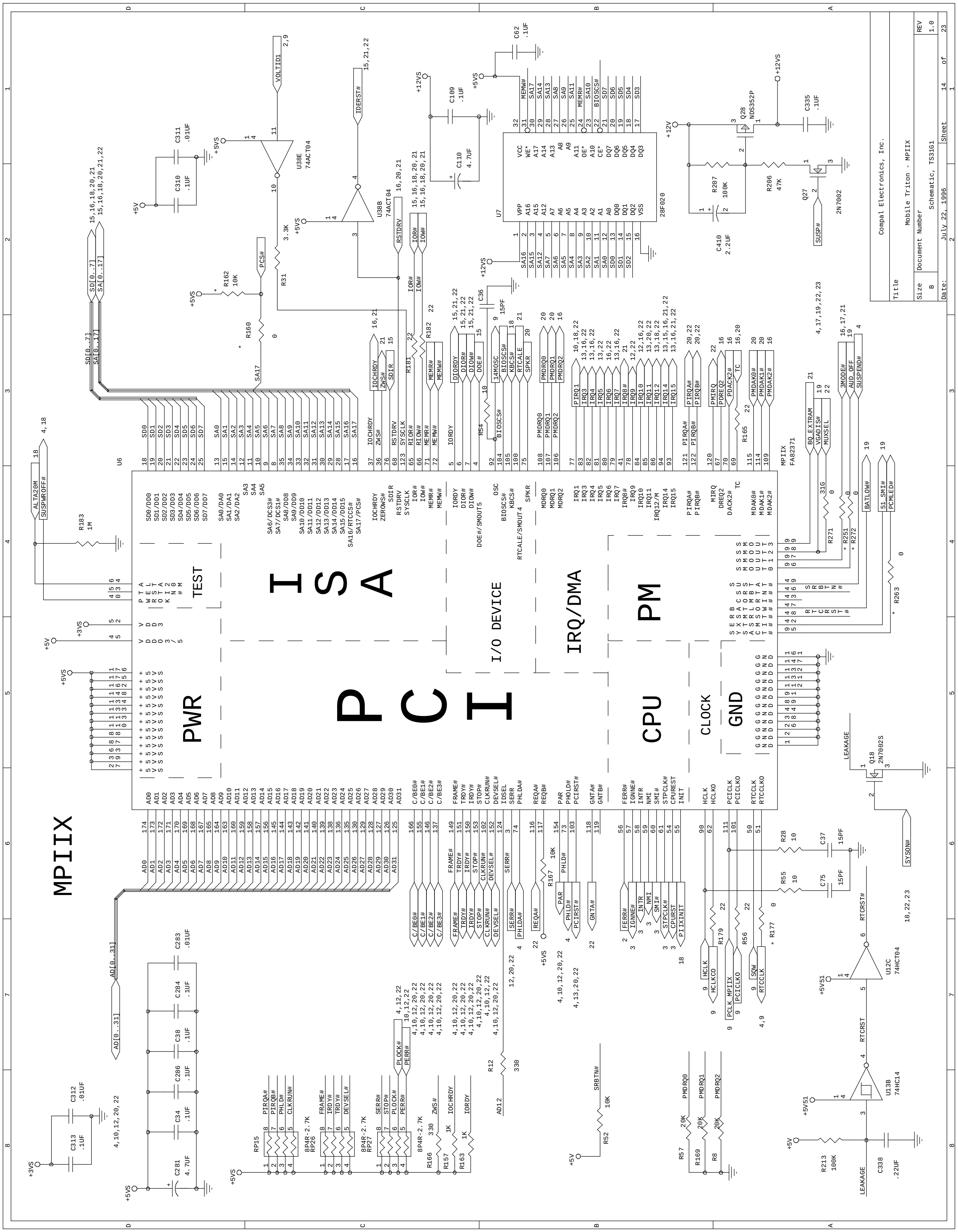

Compal Electronics, Inc.
Title
Clock Generator and Buffers
Size B
Document Number
Schematics, TS31G1
REV 1.0
Date: July 19, 1996
Sheet 9 of 23
SCLK20 SCLK21 SCLK22 2XCPUCLK(MHZ)
0 1 1 66
0 0 1 60
1 1 1 50
R192,R193 change to L for EMI
U35
W48C54A-23
SOP
U36
W40C06
U37
W40C06
HCLK_CPU
HCLK_MTSC
HCLK_MTDP
HCLK_SRAM0
PCLK_MTSC
PCLK_MPIIX
PCLK_DOCK
PCLK_PCM
PCLK_VGA
PCLK_MPEG
14M_VGA
14.3M_AUD
14MOSC
24MOSC
HCLK
HCLKCO
PCICLKO
RTCCLK
VGARTC
SQW
POK#
POK
VOLTID1
VOLTID2
X3 14.318MHZ
X4 32.768KHZ
JOPEN

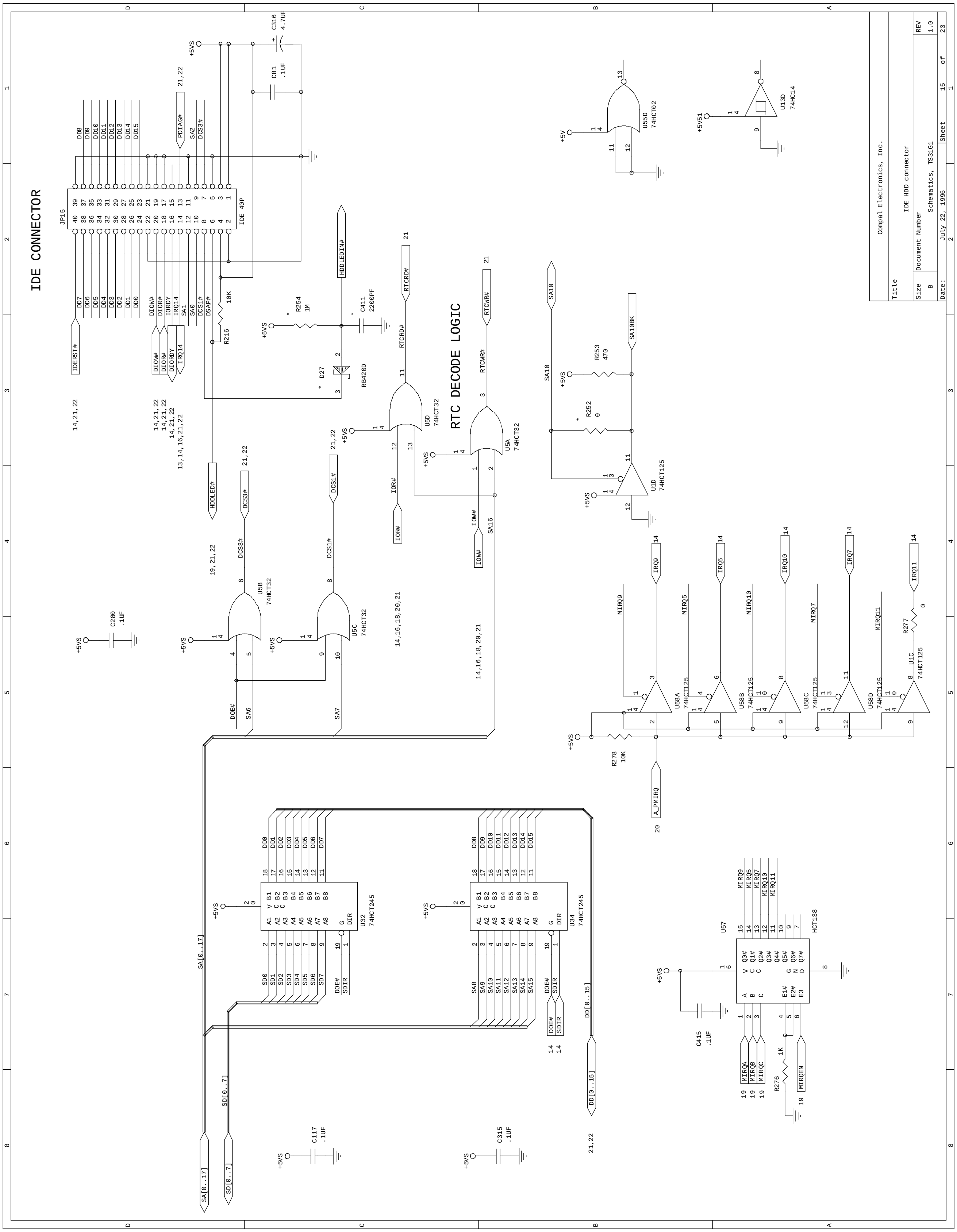

Compal Electronics, Inc.
Title
NM2090 VGA CONTROLLER
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date:
July 22, 1996
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of
23

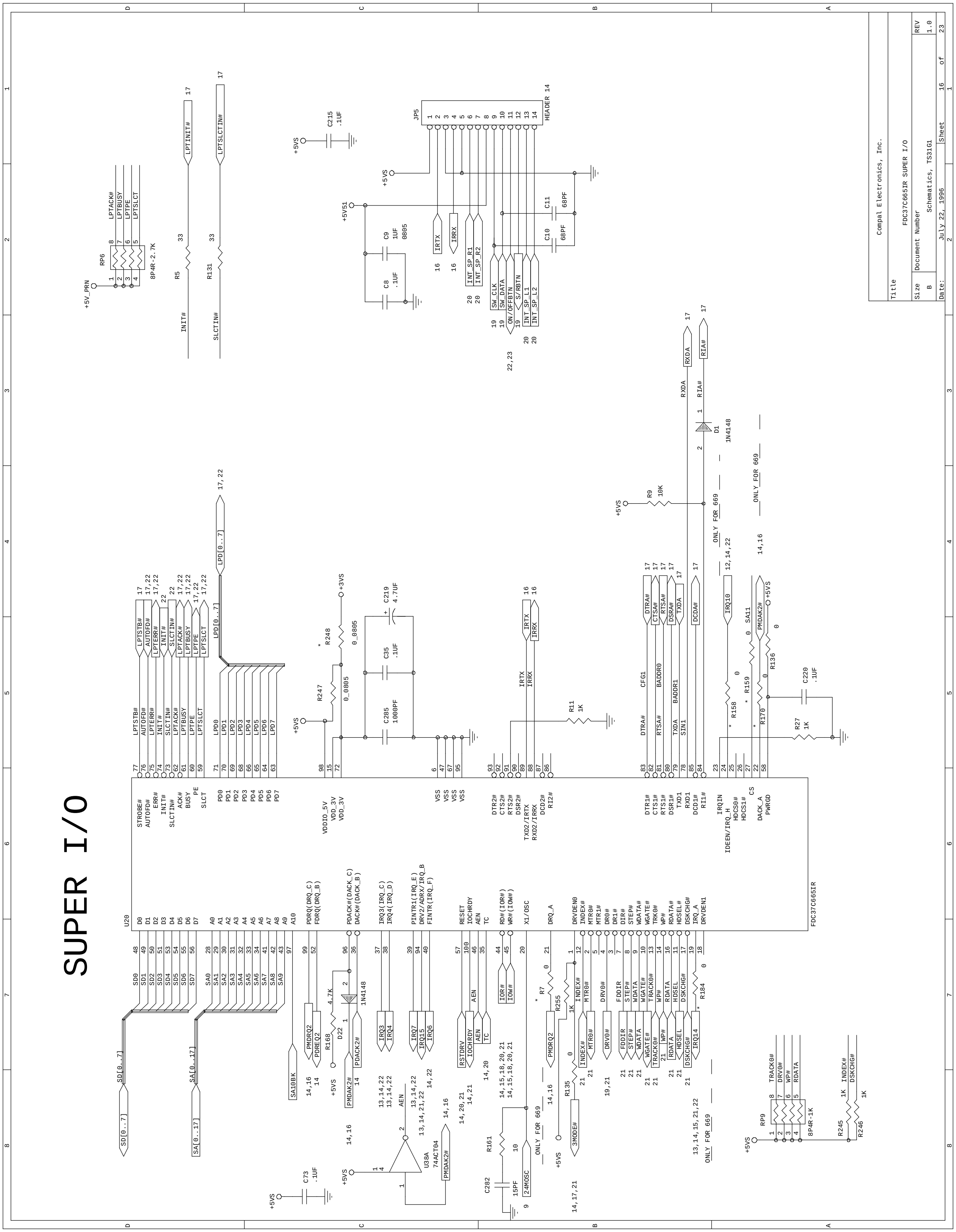

COMPAL ELECTRONICS, INC.
Title
LCD & CRT CONN.
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date:
July 22, 1996
Sheet
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of
23

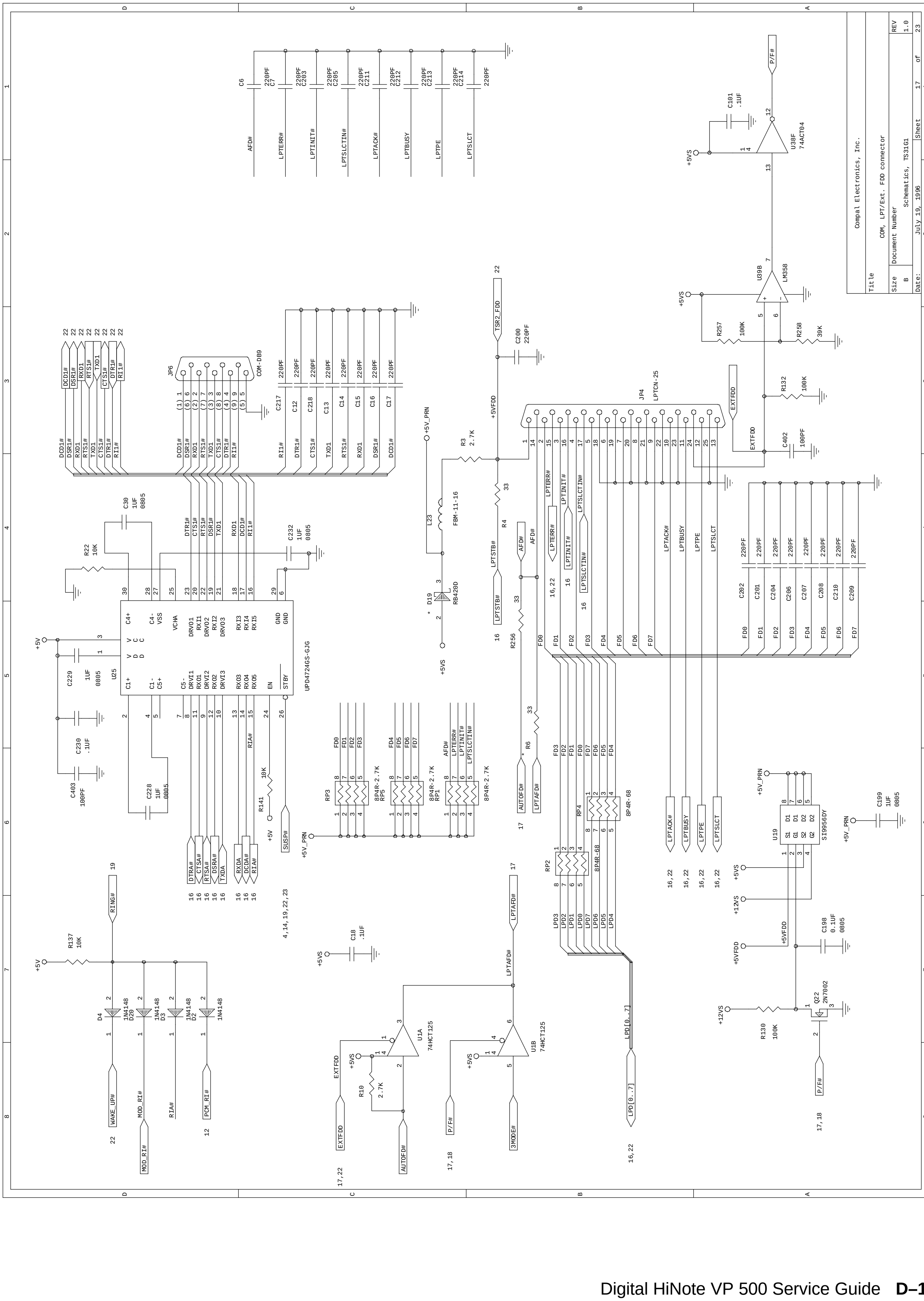

Compal Electronics, Inc.
Cirrus CL-6730 PCI PCMCIA controller
Schematics, TS31G1
July 22, 1996
CL-PD6730

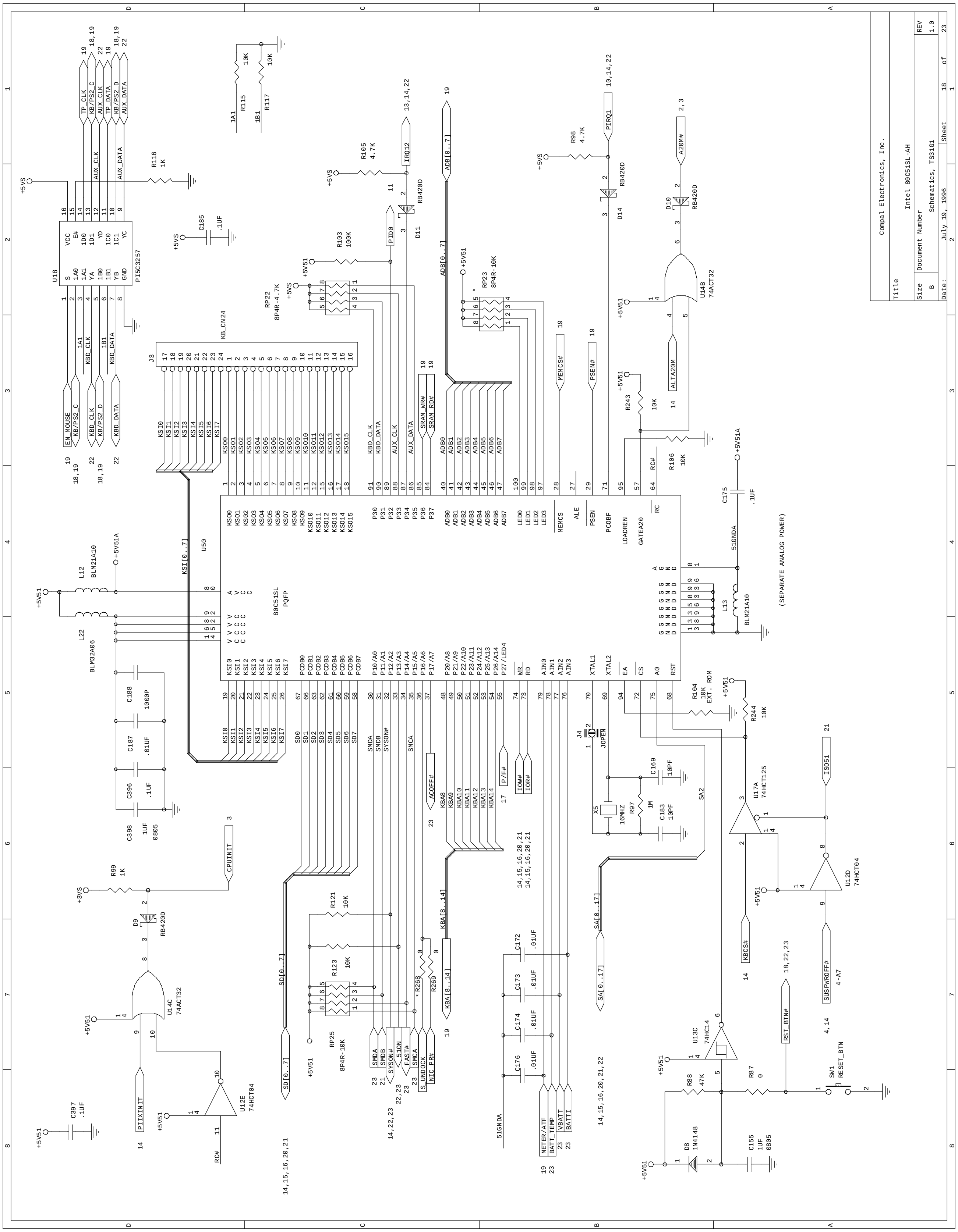

Compal Electronics, Inc.
Title
PCMCIA Socket and Power control
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date: July 22, 1996
Sheet 13 of 23

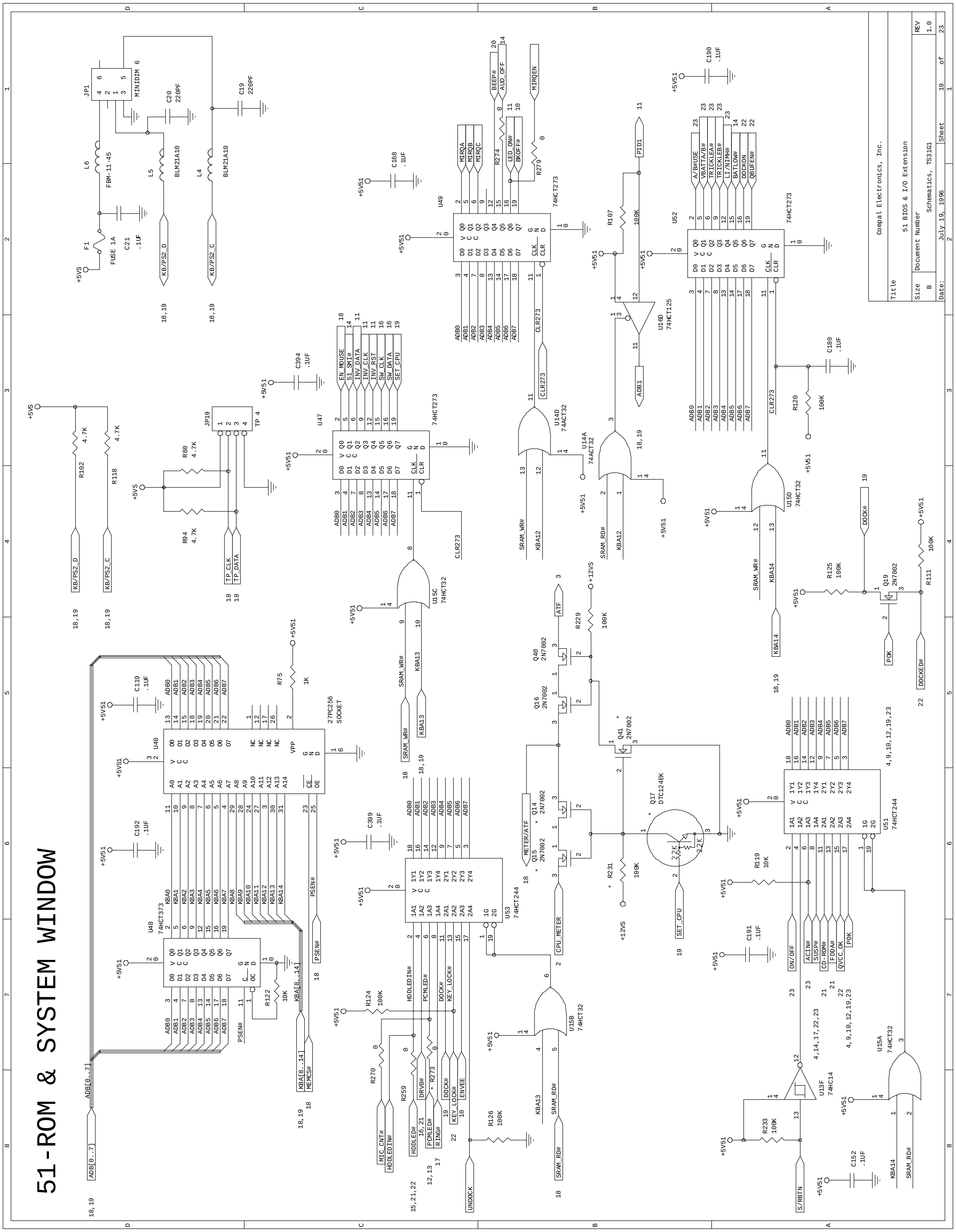

MPIIX
PCI
ISA
PWR
TEST
I/O DEVICE
IRQ/DMA
PM
CPU
CLOCK
GND
Compal Electronics, Inc.
Mobile Triton - MPIIX
Schematic, TS31G1
July 22, 1996
Sheet 14 of 23
REV 1.0

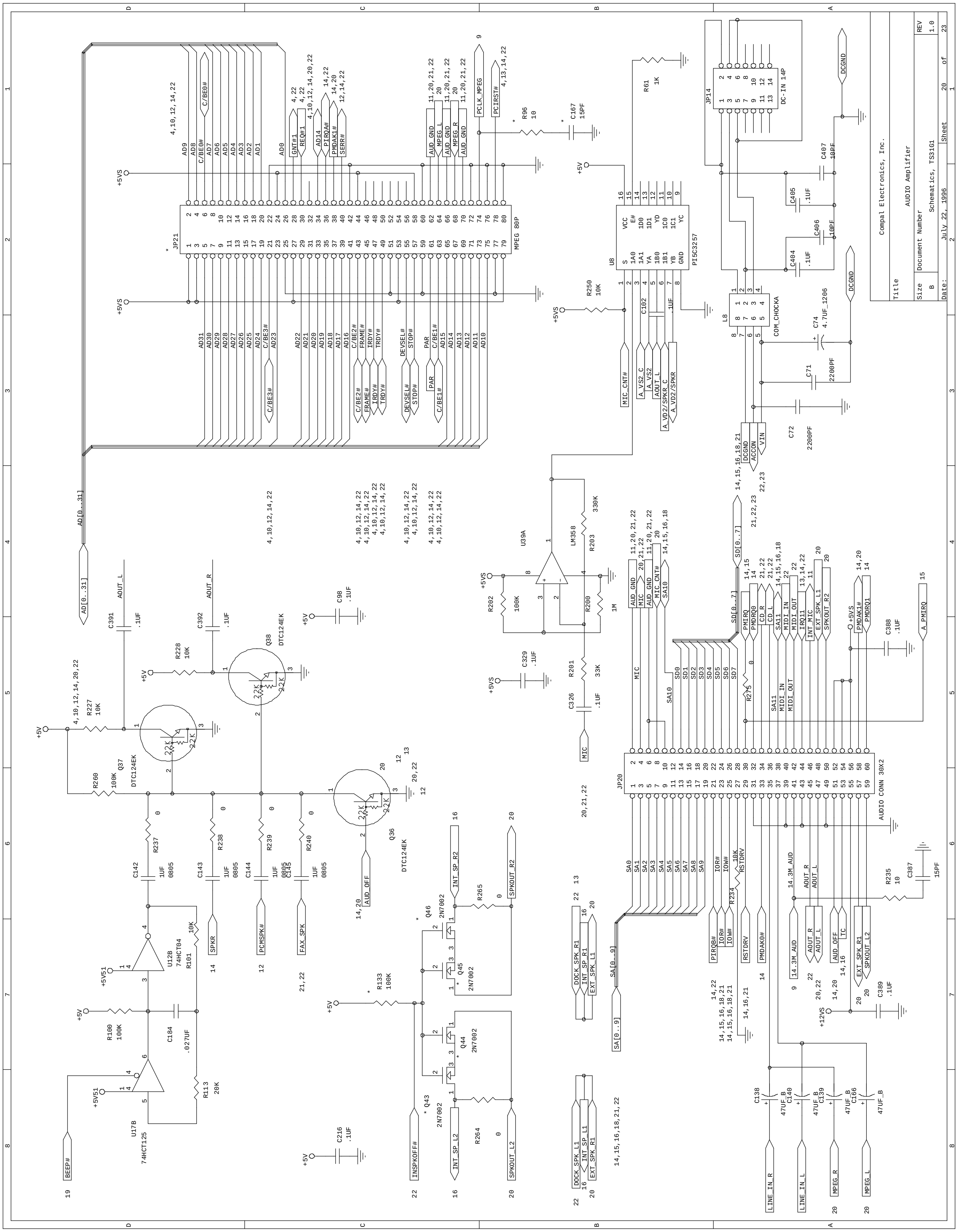

IDE CONNECTOR
RTC DECODE LOGIC
Compal Electronics, Inc.
Title
IDE HDD connector
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date:
July 22, 1996
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of
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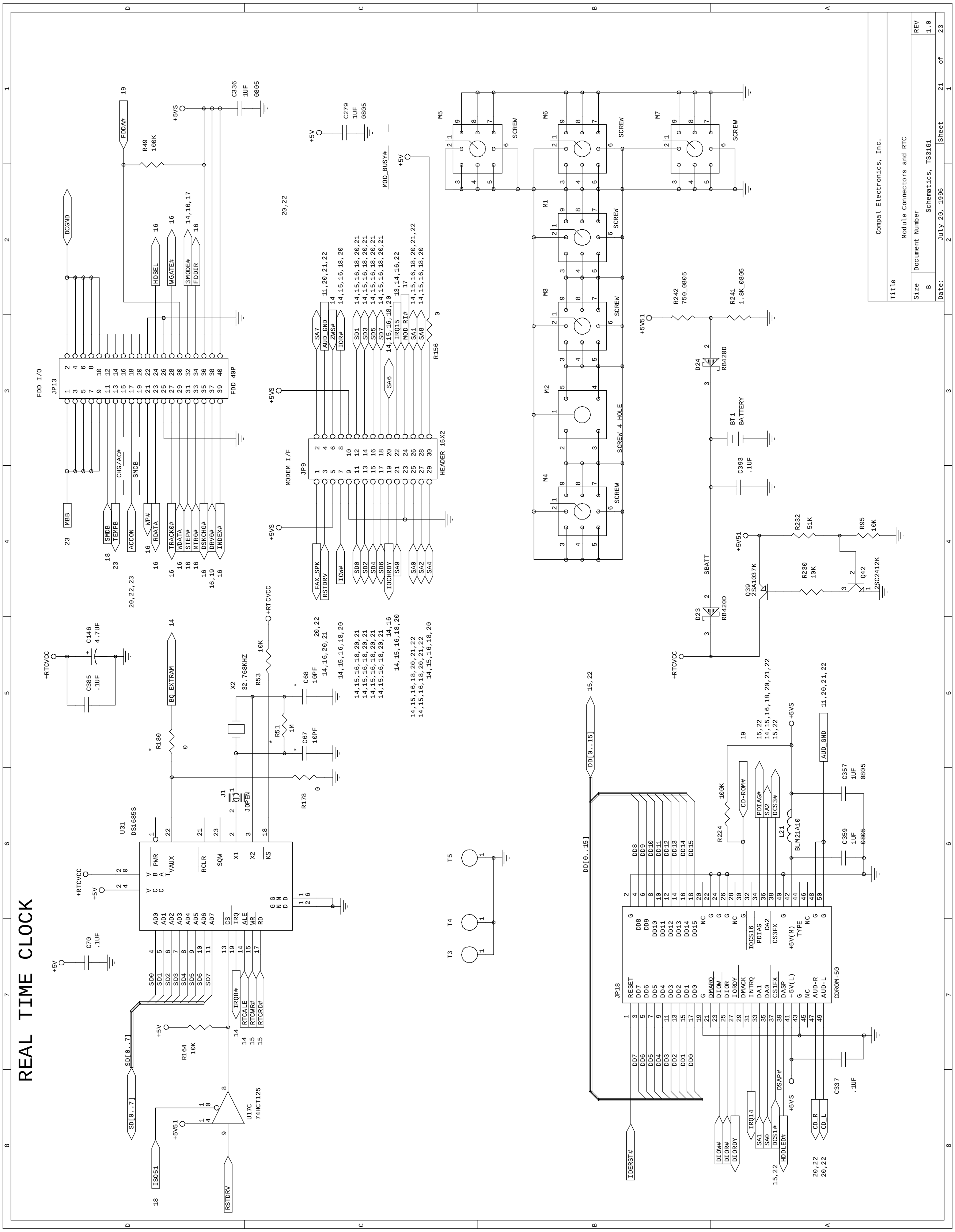

SUPER I/O
Compal Electronics, Inc.
Title
FDC37C665IR SUPER I/O
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date:
July 22, 1996
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of
23
FDC37C665IR

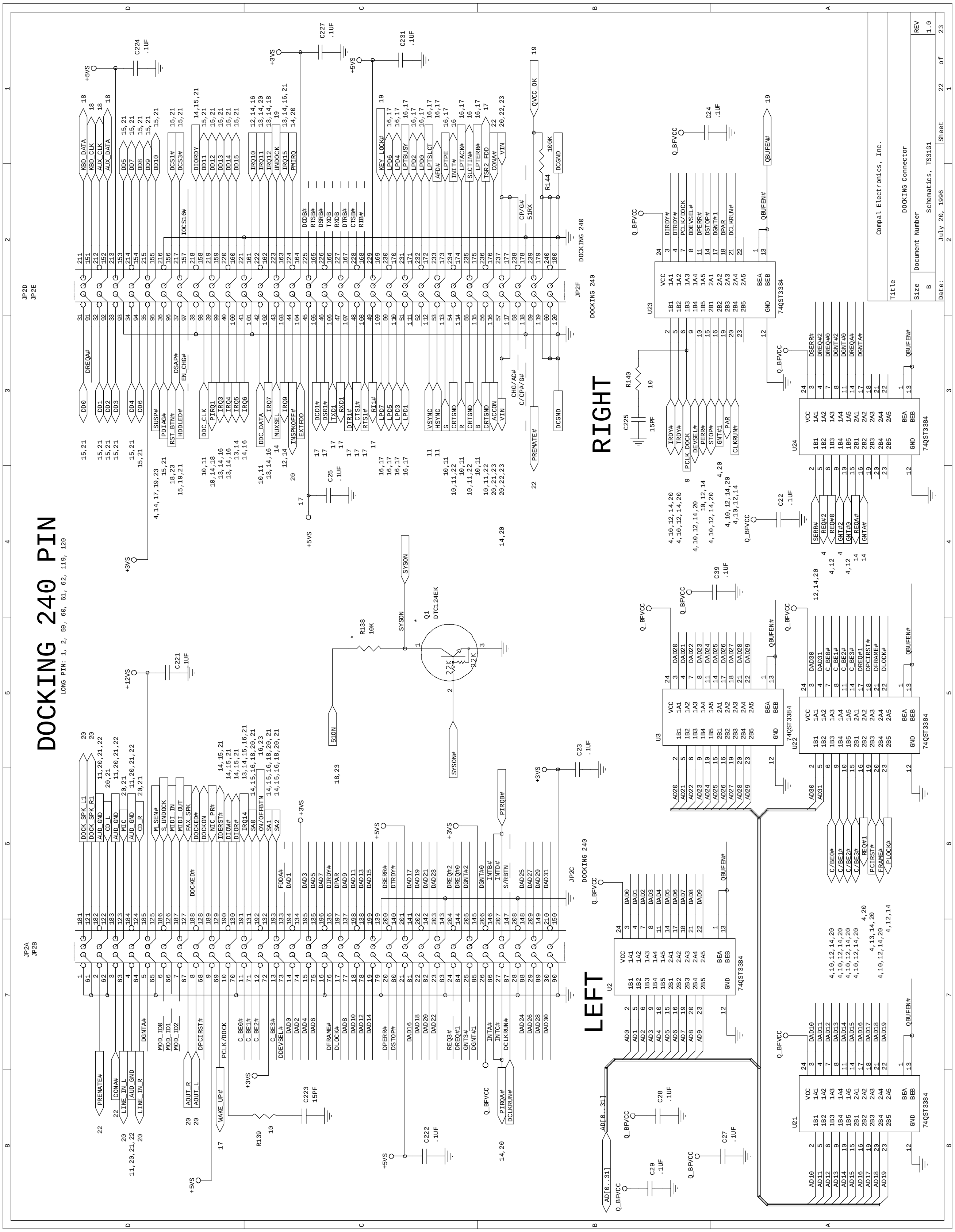

Compal Electronics, Inc.
Title
COM, LPT/Ext. FDD connector
Size B
Document Number
Schematics, TS31G1
REV 1.0
Date: July 19, 1996
Sheet 17 of 23

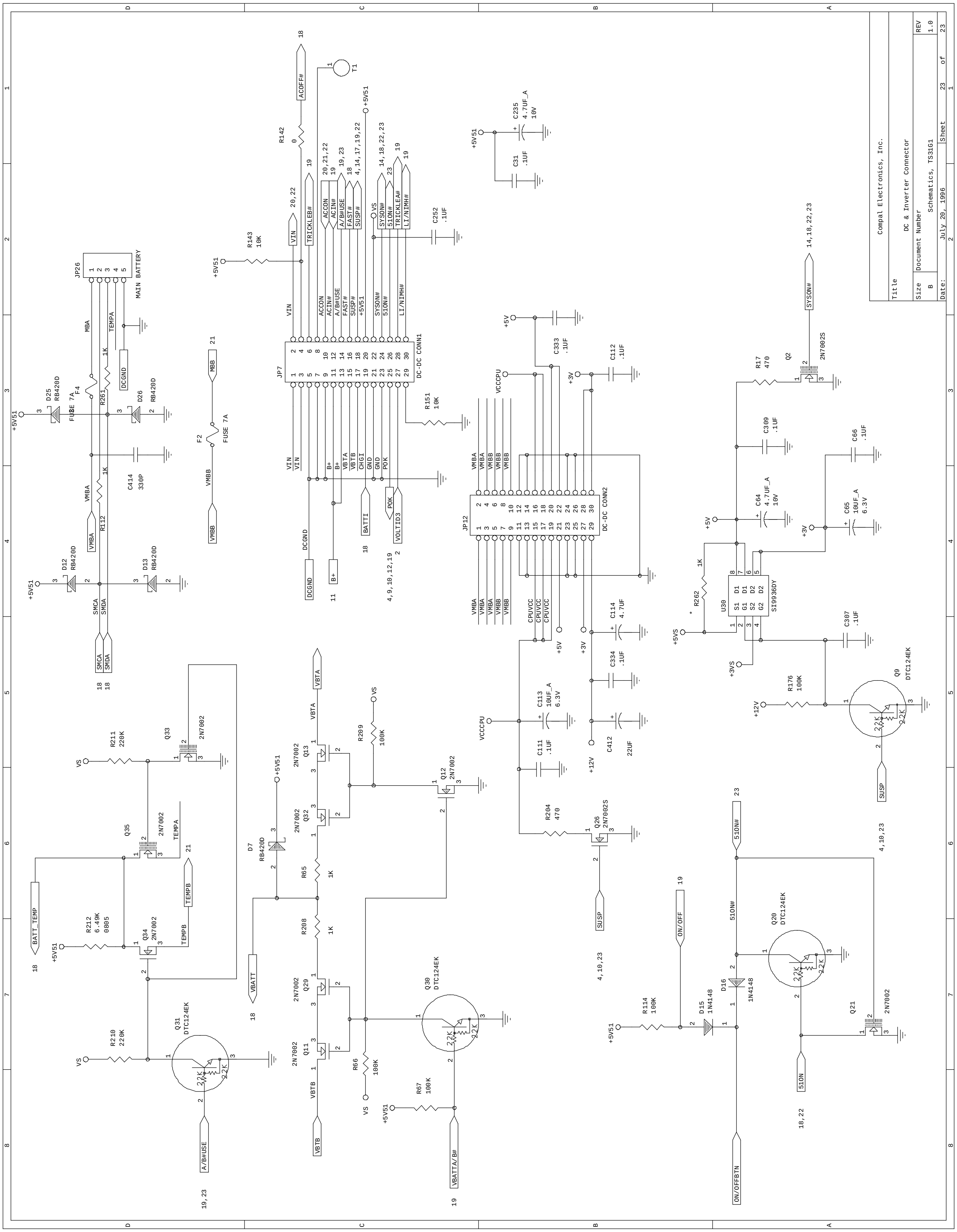

Compal Electronics, Inc.
Title
Intel 80C51SL-AH
Size B
Document Number
Schematics, TS31G1
REV 1.0
Date: July 19, 1996
Sheet 18 of 23

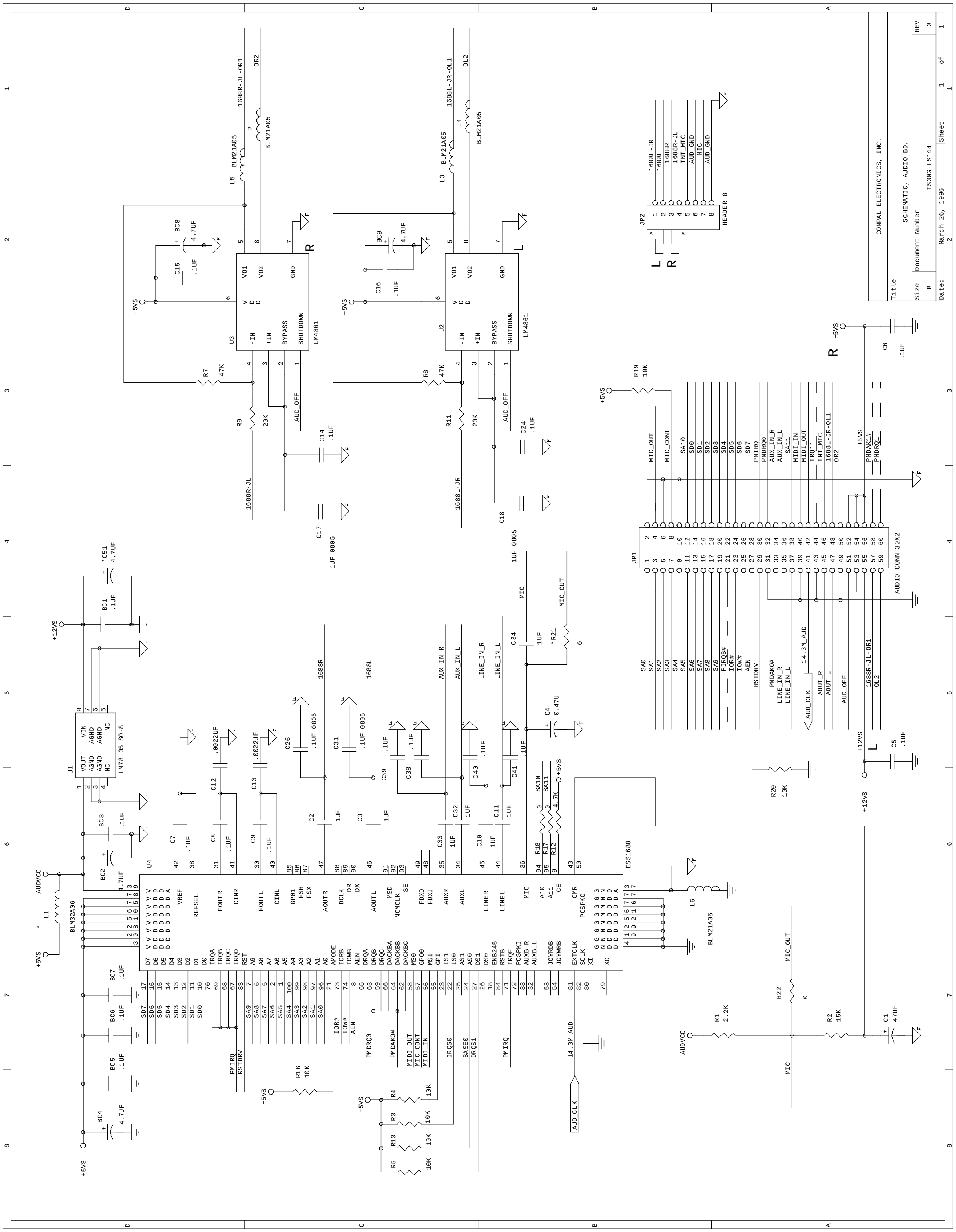

51-ROM & SYSTEM WINDOW
Compal Electronics, Inc.
Title
51 BIOS & I/O Extension
Size B
Document Number
Schematics, TS3161
REV 1.0
Date: July 19, 1996
Sheet 19 of 23

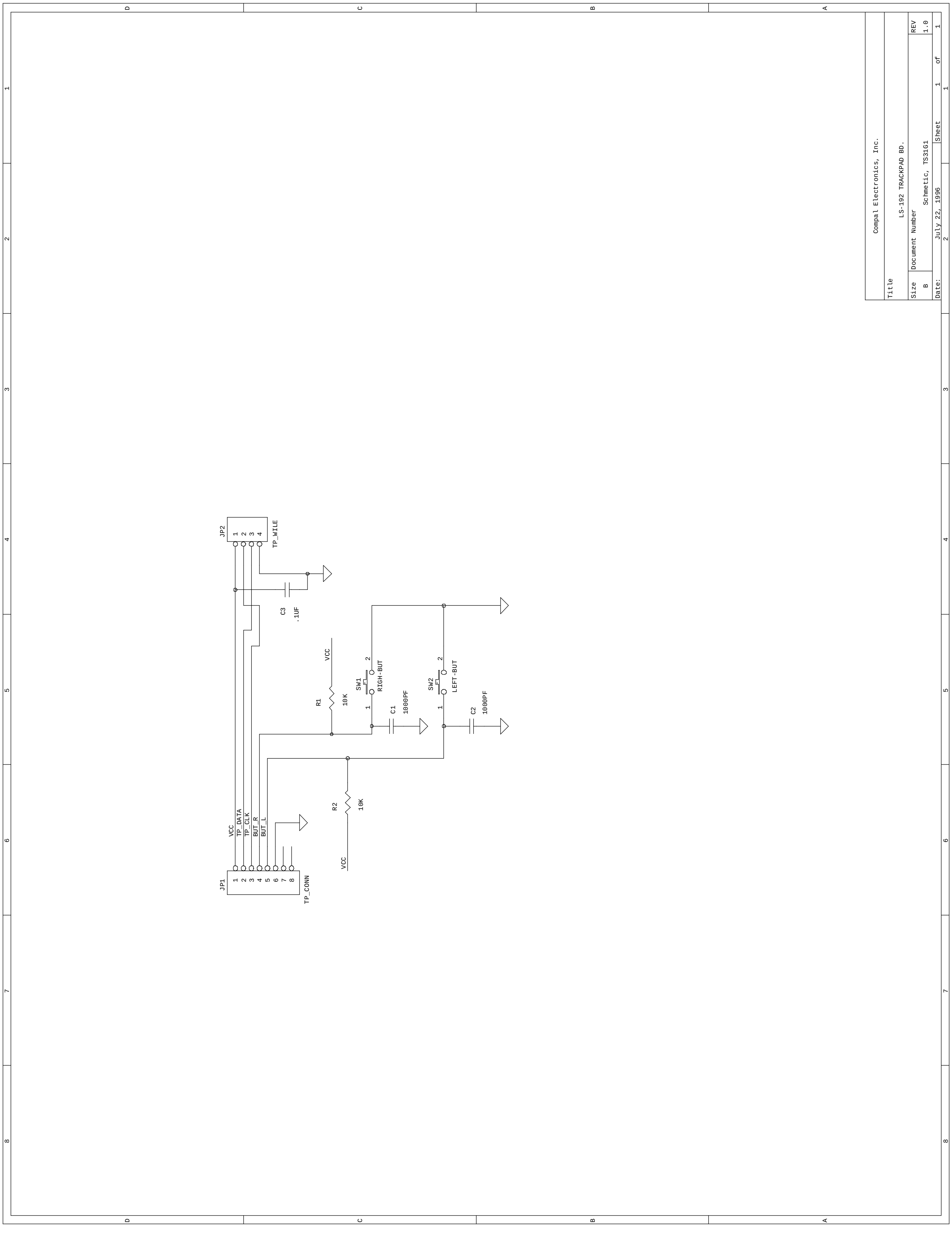


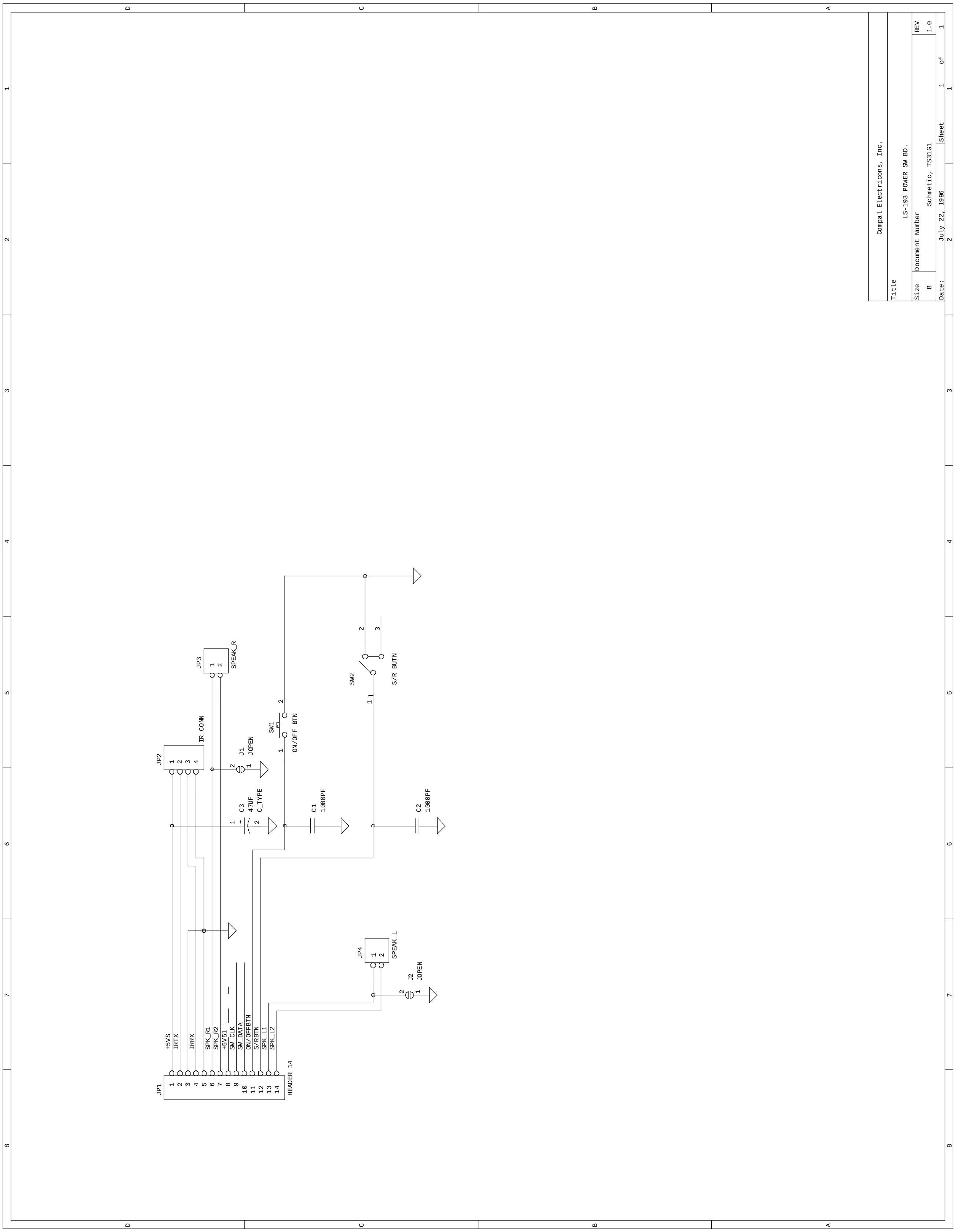

REAL TIME CLOCK
Compal Electronics, Inc.
Title
Module Connectors and RTC
Size
B
Document Number
Schematics, TS31G1
REV
1.0
Date:
July 20, 1996
Sheet
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of
23

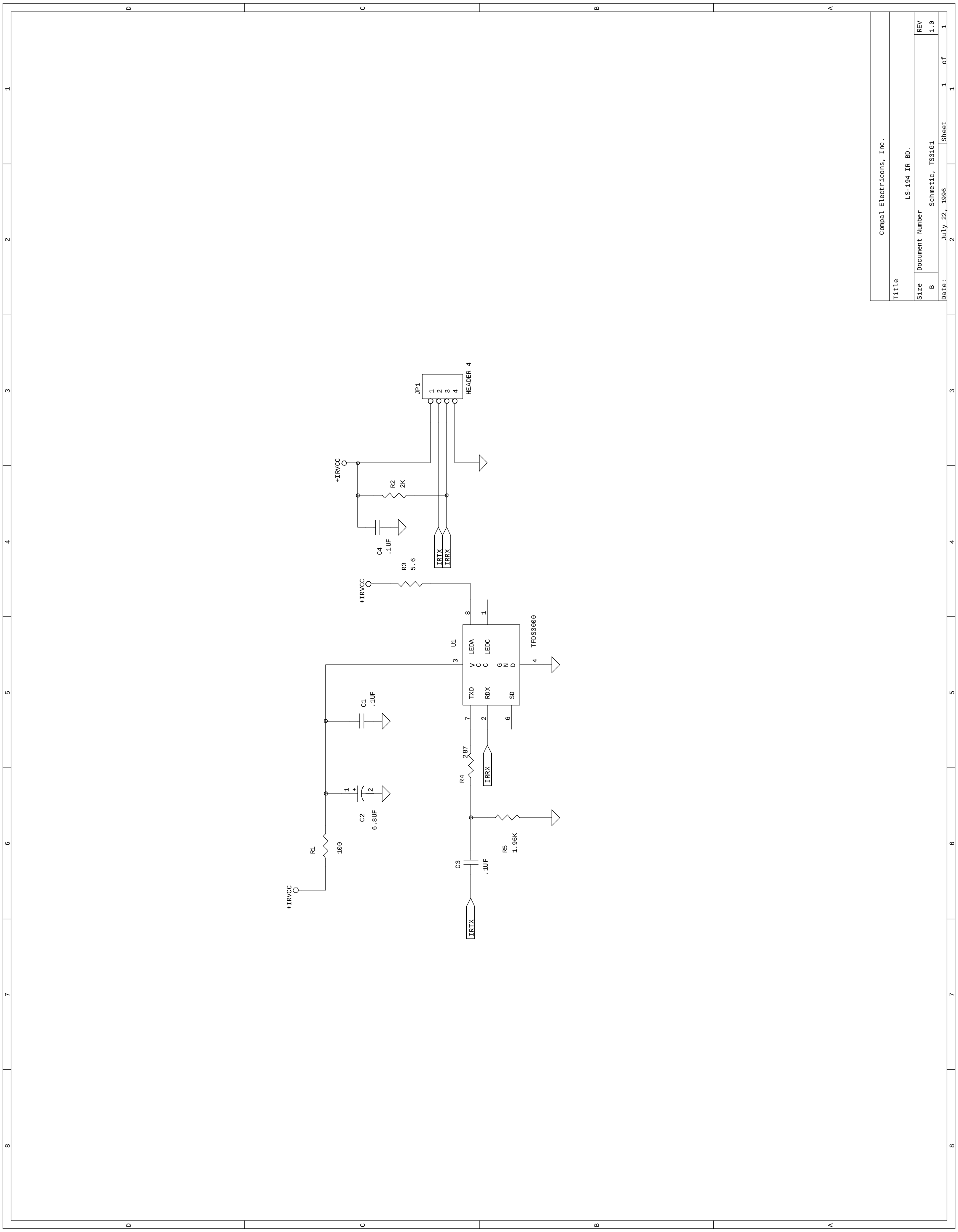

DOCKING 240 PIN
LONG PIN: 1, 2, 59, 60, 61, 62, 119, 120
RIGHT
LEFT
Compal Electronics, Inc.
DOCKING Connector
Schematics, TS31G1
July 20, 1996
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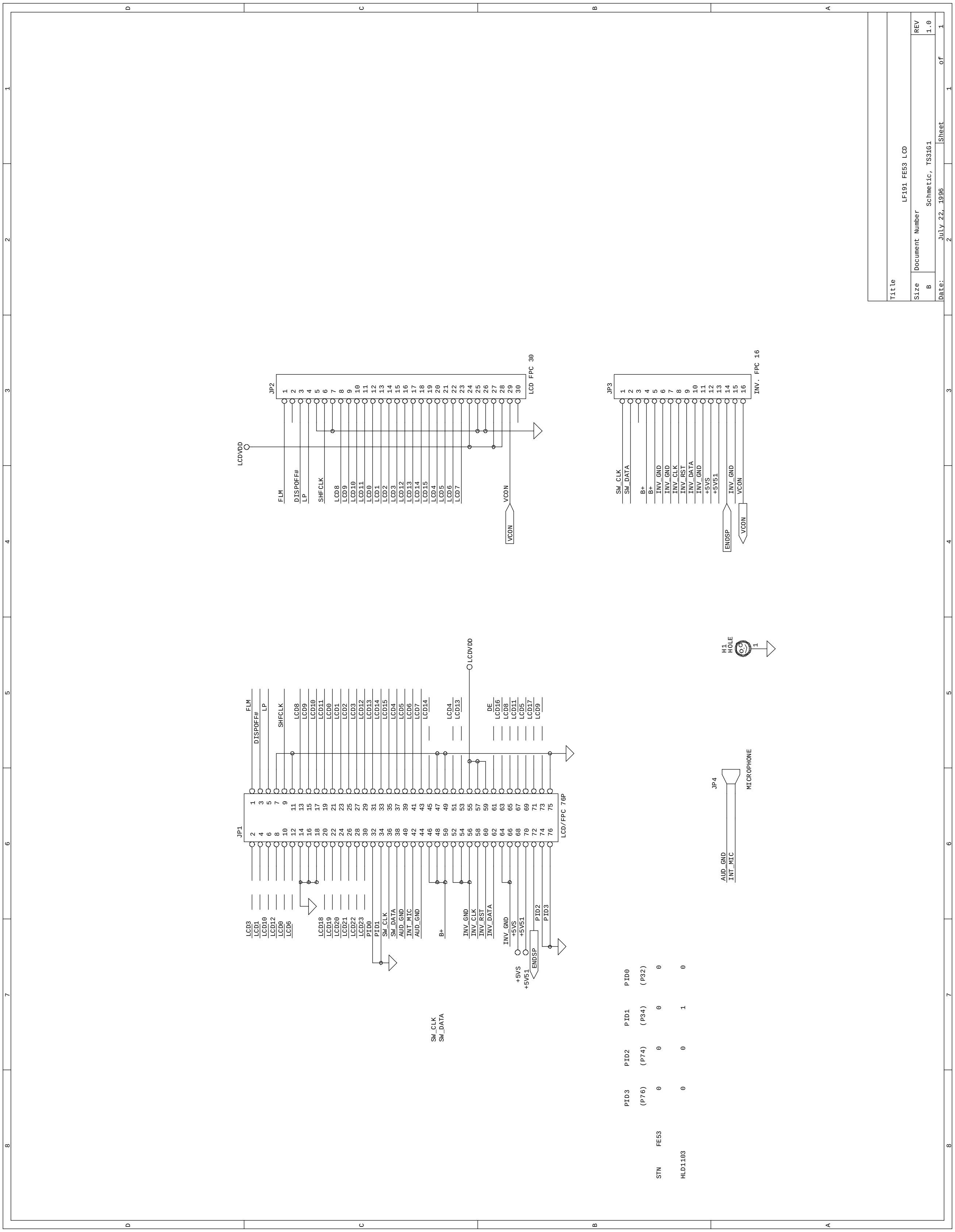

Compal Electronics, Inc.
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Schematics, TS31G1
July 29, 1996

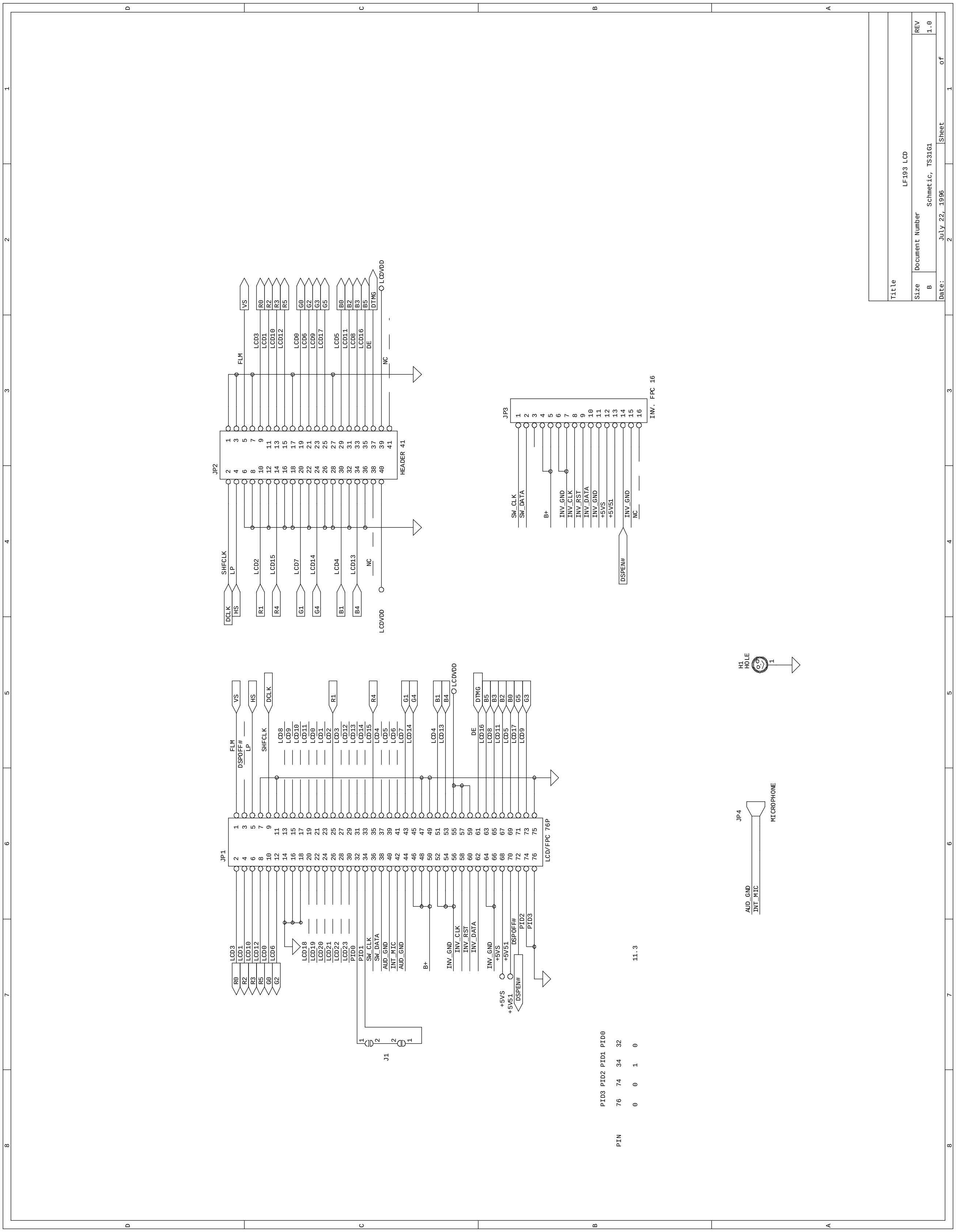

COMPAL ELECTRONICS, INC.
SCHEMATIC, AUDIO BD.
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